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INTERNATIONAL AFFAIRS

CEMA, WORLD ECONOMIC INTEGRATION DISCUSSED

Budapest PENZUGYI SZEMLE in Hungarian No 1, Jan 80 pp 39-46

[Article by Laszlo Csaba, senior member of the Research Institute for World Economy: "The Role of CEMA's Product and Money Relations in the New Phase of World Economic Development"]

[Text] It is still characteristic of a major part of the literature on socialist integration that--unlike the CEMA's related documents such as the complex program or the joint declaration of the chiefs of states at the 32nd congress at Bucharest--it considers the economic cooperation of the socialist countries as a kind of separate world which can be dealt with independently (according to certain authors, normatively as well) from the processes taking place in the other parts of the globe. The change of external conditions has become the center of attention today, which is natural, since the globalization of international economic processes and the process of world economic integration are indisputably emerging to become part of practice. These processes are made most concrete by the problems in the amounts of ruble imports in exports accounted in dollars and the amounts of dollar imports in exports accounted in rubles.

The fundamental changes above have not yet appeared in the literature of socialist economic integration. Aside from a few new analyses worthy of attention, the problems of regional economic cooperation are scanned in a new way only by the general literature on world economy. The examination of the means of cooperation, from the viewpoint of the requirements of the new developmental stage of world economy, is still a task to be done. This is what the present article--which is limited to the examination of only a few means of cooperation, namely, of product and money relations--also tries to contribute to.

The economy of the European CEMA-countries is characterized by world economic integration, the conforming to the requirements of the new developmental stage, the increasing lack of capitalist balance of payments, the necessity of structural changes demanded by the former in real economy, and the existence of common deficiencies of the regionally cooperating countries.

Earlier the theory of capitalist was dominated by regionalism and socialist integration and, to some extent, also in socio-economic pursuits. In other words, the degree of success of the integration was determined by the increase of mutual balance of trade. This concept was not corroborated by the developments during the 1960's and 1970's in real economy and, as by the extensive Hungarian literature has also shown the recognition that the success of integration cannot be measured by the increase of mutual trade gained ground in the theory of integration. In other words, regional cooperation and world economic openness are not mutually exclusive but interdependent and mutually supplementing processes.

With regard to the integrational mechanism, two things follow from this. The first is, according to the above, its optimal form is not what encourages a maximum regional trade. The other is that the integrational mechanism alone is not "responsible" for the development of trade within a region. It must be examined separately whether the decrease of regional trade is the result of objective world economic processes that are unfavorable, that is, of economic policies which define the interests of the participating countries, or the result of the mechanism of cooperation.

It seems that the dilemma of defense toward or adaption to changes in world economy has been solved for the benefit of the latter, for the European socialist countries. The main task in this new situation has become the linking of development policies with strategic economic decisions connected with the CEMA-integration and the cooperation between East and West. This is also reflected in the October 1977, and the April and December 1978 resolutions of the MSZMP's Central Committee. How do the product and financial relations between the elements of the CEMA-mechanism serve the world economic integration of the CEMA-countries, that is, the export-oriented economic policies?

Import-orientation and Transferability

The economic character of the CEMA's product relations is defined by the centralized national planning whose most natural and fundamental means is the balance method. For this reason, it is basically autarkic from the beginning, for the economy's demand for imports--defined both logically and technically as natural--enjoys a priority. On the other hand, exports are not the result of an alternative selection from economically efficient activities but the means to meet the demand of input, as naturally defined by the directive national economic plan. Thus foreign trade--that is, exports--means in the view of planning an inherent kind of loss and sacrifice, a giving up of resources that could also be used domestically. In this, of course, the chronic tendency of the directive socialist planned economy to overspend, and the resulting economy of scarcity, are also reflected. This was defined in the "heroic age" of the Soviet planning of the 1930's as foreign trade constituting a sacrifice for the national economy for the sake of acquiring the imports that are absolutely necessary for the economy, with the only exception of the so-called absolute shortage

products (which cannot be produced in the Soviet Union, such as bananas, for example) and the world's most advanced technology. Both the theory and economic policies have superseded long ago, in the Soviet Union too, this autarkic view which measured every actual expense for imports by the potential cost of imports substitutions. For this view is justified only when the country's investment assets are considered unlimited; otherwise the general economic question is brought up: are domestic or foreign sources more economical to meet certain demands?

The economic policies of the Soviet Union also consider foreign trade today as an alternative question of efficiency, and this is no doubt even more true of the small CEMA economies that are open and very dependent on foreign trade. The change of view can, however, hardly be implemented in practice, for the balance method, by its character, is inherently import-oriented. Its form, originating from this and from the system of central decision or, when all things are considered, from the character of the plan instruction system of imports and exports, and developed on the analogy of the domestic system of delivery [technical] material supply, is the trade that is based on interstate bilateral agreements and compulsory contingents. For this reason, the volume and structure of trade are, to a great extent, determined by the 5-year delivery contracts verified in the coordinated plans or by the annual foreign trade protocols that define these contracts. They reflect but are not determined by the financial processes. In other words, there is no product metamorphosis. The owner of TR [expansion unknown] cannot know in advance, how much labor will be equal to the use-value of that he will receive in exchange, if at all, which makes it undesirable for everyone from the beginning to stock-pile. This is even more so if we consider that the TR's "buying power" is not constant, not even in the same relations or product groups. This is, incidentally, a quite common relationship; if a directive economy that is based on managing of prescribed funds carries on foreign trade of a natural character (barter) and has international trade and payment agreements with more than one country (clearing), then the accounting units, because of the different product structure and dynamics of the trade, can only accidentally coincide in these relations. This is independent from the problem of essential and non-essential goods. Supposing a market economy, in order to maintain a balance, a relational rate of exchange, premium and discount must be applied alongside with clearing. Because of the things said earlier, this is different in each case and, because of the circulating capacity of the clearing currency which is smaller than that of the free foreign currency, their buying power is different even in case of nominal identity. In other words, since the relational prices, because of the characteristics of clearing, are--even in the case of a market economy--necessarily different, because of the relationships above, from each other (this follows from a striving to achieve a zero balance) and from the world market (free foreign currency) prices (that is, their coincidence can be only accidental), the implementation of the Bucharest principle of pricing is practically impossible. It is also impossible when the clearing price and the free foreign currency price are identical ("we are trading at capitalist world market prices"), and it is

also impossible when the principle of one product-one price is implemented in the trade between any two socialist countries (this is served by the regulation that it is possible to accept the real price of another socialist relationship as a world market documentation). Furthermore, it is also impossible when the different relational prices of a country do not vary ("a certain product should be sold to everybody at the same price"). It is an additional prohibiting factor that the relative value of the clearing currency and the free foreign currency (TR-dollar proportion) is also necessarily different in each country, that is to say, their conversion at a unified rate is senseless, for it expresses nothing.

This logic is identical with an earlier conclusion resulting from a mathematical model. According to this, it is possible to suppose that, under conditions that are much more complex than the simple model (based on 196 cases) and are suitable for actual foreign trade, "the factors that influence the system of mutually advantageous prices cannot be so precisely defined, at least not yet, that they may become recipes or directives for foreign trade enterprises in determining contract prices. It is worth considering whether the enterprises or institutions that represent the interests of the countries could, by exploiting the great possibilities of their reciprocal foreign trade and by bargaining, set the mutually advantageous prices. Experience since the implementation of the Bucharest principle of pricing shows that even the central fixing of the principles of the initial base will not stop the bargaining which now emerges in the form of debates on their definition and application. Bargaining connected with the main market prices should perhaps be replaced not by a bargaining about the application of another base but by a free bargaining of traders in a specified situation and representing specified interests, and by an open clash of opposing interests."

I must note that this proposal, which stirred up a great deal of dust, is not after all so different from the present system in effect. It was already brought up that the separation of internal and external markets also means that the national value-creating processes do not play a significant role in determining prices according to economic rules and thus the socialist world market prices have no objective upper and lower limits. It is known that prices are "derived" from the requirements of zero balance, partly in the form of tie-in sales, partly in that of price increases, according to the characteristics of barter trade, which is reflected (but not determined) by them. Since neither the one's own economic mechanism, nor that of the partner state relates prices with company interests, nor do they set upper and lower limits, it becomes possible for the domestic prices of the individual countries to unilaterally become the basis and economic justification of the "world market prices" of finished products. After Ausch, it could be formulated this way: in a very significant part of finished products, the "socialist world market price" is actually not a world market price at all, for it is not any form of the international value. The trade of a significant proportion of the finished products is essentially done in domestic prices, or more correctly, in

yesterday's prices that do not even reflect national costs. Prices may be derived from these rather than from some kind of world market price." And this is essentially tantamount to not having a principle of pricing, resulting in a free bargaining of traders representing "national" interests, with the only limitation that demand not affect production.

We should add to this the problems of essential and non-essential goods in which the difference between demand and supply, on the analogy of the fixed-priced domestic market, results in shortage or surplus products. The main characteristic here is the change in demand and supply is reflected by the degree of essentiality only through subjective transposals. Thus, the foreign trade authorities may classify and reject a product as non-essential even if it is a shortage commodity on the domestic market. This is one reason why essentiality cannot be qualified. The other thing is the lack of correlation between essentiality and price. In other words, it is not the essential goods that are more expensive and vice versa, which is natural, because the price would otherwise express the larger demand for the product, which is a characteristic of the free-priced but not the fixed-priced market. For this reason, the quantification of essentiality and the problem of transferability is not possible to solve within a given framework, not even theoretically.

World Economic Integration--Convertible Currency

It is clear that the common currency functioning as the unit of accounting, or the bilateral organization of foreign trade cooperation between countries does not promote the maximal exploitation of advantages potentially arising from cooperation, for it reduces mutual deliveries to the level of willingness of the country with the smaller delivering capacity. World economic integration would be better served by a convertible currency that reflects the multilateral system of accounting and product movement, because this would make it possible to reduce the negative balance of payments through deliveries to other CEMA-countries. This possibility is being realized today in the trade between member states in exchange for free foreign currency (if one of the countries has a balance surplus) as well as in the reverse case, in the form of product barter transactions, or in the case of trade done through capitalist middlemen.

Since this trade, according to the information of foreign trade authorities, constitutes 8-10 percent of our CEMA-trade annually, the formulation is not without foundation that the global division of labor has made it necessary today to directly exchange the trade, turn-out and currency of the two relations. However, since the currency of the planned trade was not suitable for this, it had to be substituted by another, convertible, currency. Thus the demand arose, justifiably, that the entire trade between the CEMA-countries, or at least a part of it, should be transacted in a real currency that is freely exchangeable.¹ The proposals have regularly appeared in the literature of the past, more than 20 years and in the every-day practice, varying a great deal in their treatment of both the level and currency of

convertibility, and the time, method and degree of realization. It would also require a separate study to review all significant proposals. The present analysis attempts only to summarize, what kind of convertibility is the one that can best serve world economic integration.

It seems from the above discussion that there is a need in CEMA-trade for currency in which an extensive global division of labor, and this the flow of products and services, can be negotiated; that is, a traditional convertible currency suitable for a trade that is not controlled by quantitative limits (contingents). This raises specified requirements, according to the kind and application of the convertible currency, for the domestic economic control and management of each and every CEMA-country. At the same time, several proposals are widely known which propose the individual or common convertible currency should be in harmony with the present centralized economic mechanisms of the member states. In fact, a concept came to light recently, in which the objective above can be reached by keeping the individual countries and the mechanism of CEMA-cooperation unchanged and by creating a limited external convertibility of the Soviet ruble. This can be done in a way that "will make it unnecessary for the Soviet Union to adapt its domestic economy to the requirements of the international system of payment."

In my opinion, no national currency can be made convertible without introducing a de-centralized and controlled market mechanism, neither externally nor at the level of centralized banking. Irrespective whether or not there is a need or a real possibility for it in the individual CEMA-countries, it is not useless to summarize again a few relationships between convertible currency and the economic mechanism.² This will shed some light on a few requirements in the CEMA-countries' adaption to the new period, a beginning era, of the world economy and, through this, in their own mechanism of domestic economy.

The Relationship Between Convertibility and Mechanism--An Example from the History of CEMA-Cooperation

The proposal, which has actually been in effect since 1957 and which recommends a multilateral settling of some accounts, is essentially identical with the proposal of trade without partial contingents. In its essence, it is based on the theoretical thesis that "the bi- and multilateral forms of the relations cannot be considered as opposing or excluding one another, since (?) they supplement and mutually enrich each other." For this reason, multilateral accounts must be first experimentally introduced, and practice will determine their further application. This basic concept is the foundation of the 1957 multi-clearing agreement.

This thesis, which was the basis of practice, was not at all corroborated by actual trade, although the member states have strived since 1957 to create a multilateral accounting system, reflected by the 1964 creation of the International Bank for Economic Cooperation, by the creation of

banking technology for multilateral accounting and by an appropriate change of the clearing ruble to make it transferable. In practice, however, there was an increased striving for bilateralism, that is, bilateralism spread within multilateralism. To describe the present situation, it may be noted that between 1965 and 1970 93-95 percent of the global balance of the countries was achieved bilaterally, 1.3-1.5 percent multilaterally, and 4-5 percent with the "Bank's credit" (that is, actually with bilateral government credit).

The spreading of bilateralism is shown by the fact that in the 1950's, as a usual concomitant of mutual trade and payment, the countries also had tri- and multilateral transactions (for example, the Hungarian-Soviet-Finnish triangular relations, or the Soviet-Polish-Finnish multilateral clearing). Although there were still multilateral balance compensations from the late 1950's to 1964, but only between the socialist countries (for example, the Hungarian-Bulgarian-Soviet and the Hungarian-Soviet-Romanian transfer clearings). However, since the introduction of the TR system, the practice of balance compensation has essentially ceased. [16]

The 1957 multiclearing agreement is described in the commentary, "Currency Questions of Socialism" as follows (page 14):

"The system of multilateral accounts was operating parallel with the bilateral clearing system and thus it was possible to carry out within its limits only supplementary deliveries that were additional to those included in the bilateral clearing agreements... In addition to the deliveries mentioned above, the following were entered in the accounts of multilateral clearing agreements:

--on the basis of mutual agreement, such sums which the parties were not able to balance in the annual bilateral trade conferences;

--in the case of verification between the interested clearing partners, it was possible to transfer the balance of the bilateral accounts onto the multilateral clearing accounts."

It is apparent from this formulation that the agreement was the result of a compromise. This is only natural, since economy is not a sterile system of logic where rationality is the decisive factor in selecting a solution, but is an agent in which the agreement is made as a result of mutual effects between groups that are affected by the contents of the proposals in objectively different ways. The compromise was made between the following two "extreme" views:

1. The view which recognizes the attitudes that support the introduction of the multilateral accounting system and that may be considered as generally accepted in Hungary today.

2. The view which favors the complete and unreserved acceptance of the ~~multilateral~~ clearing system. It considers the system as good and

well-operating and, in the viewpoint of the period, centralized economic management as identical with socialism (with the exception of Yugoslavia and Poland). In fact, this was more than once formulated in theory as well. In addition to a narrow viewpoint, it is also motivated by an adherence to the familiar and to the habitual working methods, and by the inertness resulting from all kinds of organization (e.g., repugnance against the new and against problems, also motivated by a fear of losing one's job).

The compromise has become clear: the old, proven and known system, which is considered by many people as the only imaginable system, is basically going to stay (in the present case it is the system of bilateral clearing and that of rationing), but we will also introduce the elements of the new and, in case they prove to be good, they will be widely applied. (Isn't this line of thought familiar?) Thus the end result is--socialogically--understandable but it does not alter the fact that the least essential goods were included in the multiclearing, that is to say, it did not on the whole stand the test. The question is, why not.

A pragmatic person can conclude right away that life has not corroborated the theoretical discussions about the advantages of multilateral accounts and thus they are false. The solution is also handy: the technique of determining the contingents must be perfected instead of throwing out the contingents. For if a part of the trade has "become non-essential" without the contingents, it is logical to suppose that the whole trade would consist of non-essential goods if it were done entirely without contingents, while every essential product would be sold to the West. Practice itself is opposing all theorizing and this is the main proof; without contingents and anarchically affected by spontaneous forces, trade will become that of non-essentials.

This "connection" weirdly reminds us of the fundamental flaw of statistics when someone views the mathematical/statistical correlation between the decrease of per capita consumption of potatoes and the increase of the number of hospital beds per capita as a causality (potatoe consumption is good for health) and dismisses the objections to the common cause of the two by referring to the mathematical basis of his calculations (but look, this is what the numbers tell us). Yet the common cause of the two phenomena is rising living standards. But how does this bear on multiclearing?

It seems that the deterioration of multiclearing organically follows from the compromising character of the 1957 agreement. What does it mean that these items are included in the multiclearing which could not be bilaterally checked? It means that everything but essential goods can be included, for if the latter could not be balanced, then the partners will sell them by other means or for dollars. What does it mean that, in case of an agreement, bilateral balances can be transferred here? It means nothing. Or it means nothing because nothing stood in the way of balance compensation and,

as we have seen, the member states have indeed grasped this opportunity and did this independently from the multilateralizing contract, that is, this is a superfluous clause in the contract: if it exists, it is not because of the contract, and if it ceases to exist, it is not because of the contract either. And if the interested parties did not make an agreement of balance compensation "just like that," independently from the contract, the reason for not doing it was not the fact that the bidding system of the pauprte country's foreign trade is such that the third country does not wish to buy more than necessary for bilateral balance. This is, incidentally, understandable, since the 2-percent interest in the trade between CEMA-countries does not compensate for the profit that was lost as a result of not having invested the surplus balance in the own economy (the average return is 10-12 percent). Since it is not mandatory to pay back this sum, or any part of it in free currency this means a unilateral preference for the country in debt to the disadvantage of the countries giving the credit. Raising the interests would not stimulate credits either, since the spending of the interest--as a multilateral claim--would be hindered in the "planned order," it cannot generally buy products that are desired and necessary for the country giving the credit. For this reason, it is justified to assess the balance surplus as a compulsory investment of a part of the national revenues without compensation, the avoidance of which is not an apparent but a real interest of every country and which explains both the increase of bilateralism and the failure of multilateralizing.

It is also clear, furthermore, that in the case of this experiment, the question is (was) NOT what the adherents of the first view were talking about but was the peaceful coexistence of the bi- and multilateral forms of accounting. The coexistence is peaceful because there is a defining (the bilateral) and an unequivocally defined element (the multilateral). Was THIS what the representatives of the first view were referring to? No, it was when multilateralism is applied to the whole concept, that is, when THIS is the defining, and not the defined, element. And this is what means, from the financial side, the exchangeability. For exchangeability is materially meaningful within the circle only if the owner of any currency can exchange it, or can buy products with it. For if it is not possible to exchange all currencies, then no currency can be exchanged and it will be the dollar that can be exchanged, which means that part of the trade will be transacted in this currency.

The thesis of "exchangeability=any currency can buy goods" leads us, at the same time, to the question of the compulsory character of the contingent: if the contingent is compulsory--as it is, in accordance with the theory of central planning--then the possession of money does not mean power or power of disposing of the product, for this power is manifest in the apportionment (license). In other words, if the objective is to make the enterprise to take the compulsory character of the contingent seriously, then the interest must necessarily be connected with the contingent in implementation of the plan objectives. In this case the classical

situation will come about where the buyer takes his transferable or convertible rubles containing 0.987412 grams of pure gold to the seller to buy the desired goods of the same value but will get this answer: "Look, you have money, I have a plan."

It can happen, of course, that the transaction will, for some reason, come through (for example, because the buyer offers a higher price and the seller is able to prove that the resulting delay in the planned deliveries is caused by "objective difficulties"). On the other hand, freely expendable money in foreign trade is unthinkable. For the prerequisite for this, in my opinion, would be to abort the compulsory plan indicators both in foreign and domestic trade.

In summarizing the conclusions with regard to the failure of multiclearing, we must establish that, in opposition to the discussion on pages 15-17 of the commentary "Currency Questions of Socialism," the failure has nothing to do with interest rates, for it is a direct consequence of the compromising agreement which is well founded sociologically but is contradictory economically. This supports the conclusion that economy is a complete whole and only one logic can be decisive in it. This also means in concrete terms that it is not possible to realize the often-said solution which considers the actually multilateral trade in the TR as something "above" or "in addition" to bilateral natural contingents.

FOOTNOTES

1. If certain authors voiced some unfounded doubts about the assets of the broad market conformity of economic control and management, they cannot be accepted on the basis of our knowledge of industrialization models and experience in our domestic economic control and management. For this reason, the charge of free-market abstraction, often brought up in this connection, may be dismissed: even in the case of convertibility, the question is not that the economy is not being controlled but that foreign trade is controlled not by contingents but by other means. In fact, the example of France shows that the convertible currency is on good terms even with strict government control (that is, it was until 1976).
2. This question is discussed by Katalin Botos in her article "A Few Questions of East-West Financial Relations," PENZUGYI SZEMLE [Financial Review], 1973/11. It criticizes several proposals appearing in the literature, including her own earlier views, raising different arguments, views and connections that are similar to those of the author.

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DEVELOPMENT OF GDR-USSR TRADE ANALYZED

West Berlin DIW-WOCHENBERICHT in German Vol 47 No 7, 14 Feb 80 pp 69-76

Article by German Institute for Economic Research, West Berlin: "GDR-USSR Trade Under Shadow of Slackened Growth -- Price Increases and Limits on Raw Material Deliveries Burden GDR Economy." A translation of the article by Jochen Bethkenhagen and Horst Lambrecht cited in footnote 5 below is published under the heading, "Advantages, Disadvantages of GDR Integration in CEMA Analyzed," in JPRS 74996, 24 Jan 80, No 1972 of this series, pp 1-27

Text For political and economic reasons, the GDR and the USSR maintain unusually close trade relations. The economic basis for this lies in the diverse nature of their economic potentials as expressed in the complementarity of the goods traded (raw materials in exchange for machine construction products). This situation will result in limitations on the future development of reciprocal trade: The increasing cost of raw materials will in general reduce the GDR's import capacity; moreover, for the first time in the history of this trade relationship, the Soviet Union will in the future no longer be increasing its deliveries of important energy sources. The total trade volume planned for the 1981-1985 period (48 billion transfer rubles) corresponds to an annual rise of merely 2.2 percent. This constitutes a continuation of the trend toward lessening interdependence in the goods exchange between the two economies.

Price Rise Accompanied by Slackened Real Growth

The flow of commodities between the GDR and the USSR in 1979 was probably valued at 39 billion valuta marks (VM)¹. This estimate is based on Soviet statistics for the first 9 months showing an increase in turnover of a scant 10 percent, with the increase in GDR exports amounting to almost twice the figure for imports. Trade between the two countries was thus

characterized by the effort to balance accounts; the GDR showed only a minimal deficit in 1979.

There had been substantial GDR import surpluses in preceding years, or since 1975 when a new method of setting prices led to price increases² in CEMA intrabloc trading -- namely for raw materials. The GDR's largest previous deficit with the USSR was almost 3 billion VM in 1977. The trade balance deficit accumulated between 1975 and 1979 -- 7.7 billion VM -- amounted to around 40 percent of the value of its 1979 exports. The GDR was thus unable to offset about 10 percent of its imports with its own exports during this 5-year period. In other words, the Soviet Union financed a portion of the GDR's overload with credits; it presumably took into account that the GDR could scarcely produce on short notice extra exports whose value would be close to the level of the price increases on raw materials. Prior to 1975, the GDR-USSR trade balance had been even for a lengthy period.

Measured by the total foreign trade turnover of the GDR and the USSR since 1960, trade between the two countries has risen at a less than average rate: an average of 8.8 percent annually through 1979.³ The price increases of recent years produced a clear acceleration. While the average annual increase came to 6.4 percent between 1960 and 1974, it amounted to 14.2 percent from 1974 through 1979.

The price increases are also the reason why the USSR share of the GDR's total foreign trade turnover has been rising again in recent years: from 31 percent in 1974 to 37 percent in 1978. This constituted a break in the trend that had been clearly recognizable up to the mid-1970's: Until 1974 this share had been declining (from 46 percent in the first half of the 1960's to 31 percent in 1974). Nevertheless, the Soviet Union has always been far and away the GDR's most important trading partner: The CSSR, Poland and the FRG each have about a 10-percent share in the turnover.

Conversely, the GDR is also the USSR's largest trade partner, although it is only slightly ahead of the next-closest countries.⁴ From the standpoint of the Soviet Union as well, a noteworthy "trend toward lessening interdependence" can be observed over the long term. In the first half of the 1960's, the GDR's share of the USSR foreign trade volume still amounted to 17.5 percent, but this figure had dropped to 11 percent by the mid-1970's and has remained constant since that time.

The overall economic weight given to trade between the two countries becomes evident upon examination of the corresponding export ratios: While the ratio of USSR exports to the GDR's produced national income adds up to 10 percent, the proportion of GDR exports in relation to the Soviet Union's national income amounts to only 1 percent.⁵ To be sure, the mutual dependence has not declined to the degree indicated by the trade data, for working against this trend have been more intensive forms

Table 1. GDR Foreign Trade with the Soviet Union - Development from 1961 Through 1979

(A) Jahr bzw. Zeitraum	B) Einfuhr (P) in Mrd. Valuta-Mark ²⁾		C) Ausfuhr (P) in Mrd. Valuta-Mark ²⁾		D) Umsatz (P) in Mrd. Valuta-Mark ²⁾		E) Einfuhr (P) in Mrd. Valuta-Mark ²⁾		F) Ausfuhr (P) in Mrd. Valuta-Mark ²⁾		G) Umsatzanteil (%)	
	Jahr	Zeitraum	Umsatz	Umsatzanteil (%)	Umsatz	Umsatzanteil (%)	Umsatz	Umsatzanteil (%)	Umsatz	Umsatzanteil (%)	Umsatz	Umsatzanteil (%)
1961/1965 ⁵⁾	4.96	5.02	9.98	0.04	4.7	7.2	6.0	46.1	17.5			
1966/1970 ⁵⁾	6.71	6.43	13.14	- 0.28	10.1	5.5	7.9	41.1	15.4			
1971/1975 ⁵⁾	9.77	10.01	19.78	0.24	11.5	11.2	11.4	35.2	12.3			
1971	7.95	8.14	16.09	0.19	- 2.7	11.4	3.9	38.1	14.5			
1972	8.01	9.62	17.61	1.61	0.8	18.2	9.6	37.7	14.3			
1973	8.64	9.89	18.53	1.25	7.9	2.8	5.1	34.5	12.7			
1974	10.15	9.96	20.11	- 0.19	17.5	0.7	8.5	31.4	10.9			
1975 ⁶⁾	14.09	12.45	26.54	- 1.64	38.8	25.0	32.0	35.7	11.1			
1976 ⁶⁾	14.91	12.88	27.79	- 2.03	5.8	3.5	4.7	32.5	10.5			
1977	-	-	32.46	-	-	16.8	35.4					
1977/78	17.11	14.33	31.44	- 2.78	14.8	11.3	13.1	34.3	10.5			
1978	-	-	34.91	-	-	-	7.8	36.0				
1978/79	18.61	17.34	35.95	- 1.27	8.8	21.0	14.3	37.1	10.9			
1979 ⁷⁾⁸⁾	19.69	19.32	39.01	- 0.37	5.8	11.4	8.5	35.8	10.6			

(K)

1) Zu jeweiligen Preisen; soweit nicht anders gekennzeichnet nach der DDR-Statistik. - 2) Valuta-Mark = 0.214 Tsd. - 3) Ge- genüber dem Vorjahr bzw. durchschnittlicher jährlicher Zuwachs. - 4) Anteil in % am Gesamthandels-5-Jahresdurchschnitt. - 5) Seit 1975 weist die DDR in der regionalistischen Statistik keine Einfuhr- und Ausfuhrzahlen mehr aus. Der Umsatz wurde anhand der Einfuhr-Ausfuhr-Relationen der sowjetischen Statistik aufgeteilt, da die Umsatzwerte beider Statistiken bis 1976 ungefähr übereinstimmen. - 7) Nach Angaben der sozialistischen Außenhandelsstatistik. - 8) Hochgerechnet mit den Zuschlagsraten für Januar bis September.

(L)

Quellen: Statistische Jahrbücher der Deutschen Demokratischen Republik; Außenhandelsjahrbücher der USSR (russisch); Außenhandel (USSR) 11/1979, Berlin; Neues Deutschland vom 17. Januar 1980.

Key:

- A. Year or period
- B. Imports
- C. Exports
- D. Turnover
- E. Balance
- F. In billions of valuta marks²⁾
- G. Changes in percent³⁾
- H. Turnover percentage⁴⁾
- I. GDR

- J. USSR
- K. 1) Prices at the time; derived from GDR statistics
if not otherwise indicated
- 2) 1 valuta mark = 0.214 transfer rubles
- 3) Compared to the preceding year, or average annual growth
- 4) Percentage of total trade
- 5) Annual average
(key continued on following page)

6) Since 1975, the DDR has ceased to list import and export figures in its regional statistics. Turnover was calculated on the basis of import-export proportions taken from Soviet statistics since the turnover values found in both sets of statistics are roughly in agreement up to 1976.

7) According to Soviet foreign trade statistics

8) Projected using the growth rates for January through September

9. Sources: GDR Statistical Yearbooks;
USSR Foreign Trade Yearbooks (in Russian);
AUSSENHANDEL (USSR), No 11, 1979, supplement;
NEUES DEUTSCHLAND, 17 January 1980.

Table 7. DDR Trade with the USSR According to the Most Important Commodity Groups

-- Percentages --

(A)	1961-2) 1965-2) 1970	1966-2) 1970	1971-2) 1975	1976	1977	1978
(C) Brennstoffe, mineralische Rohstoffe, Metalle	48	41	44	52	48	50
(D) dar.: feste Brennstoffe Erdöl und -produkte Erdgas Holzwerkzeugnisse	10 6 - 17	9 7 - 16	5 11 1 15	6 17 3 15	5 19 4 14	5 22 4 13
(E) Maschinen, Ausstattungen, Transportmittel	6	14	21	20	20	20
(F) dar.: Energetische Anlagen Traktoren Schienenfahrzeuge Pkw	0 0 0 1	0 1 1 1	3 1 2 3	2 1 2 3	1 1 2 2	1 1 1 2
(G) Landwirtschaftliche Erzeugnisse¹⁾	30	26	15	10	11	8
(H) Übrige ausgewiesene Waren⁴⁾	4	4	3	3	3	3
(I) Nicht ausgewiesene Waren	12	17	17	15	18	19
(B) Einfuhr der DDR						
(K) Chemische Produkte, Düngemittel, Kautschuk	7	5	6	6	5	5
(L) Maschinen, Ausstattungen, Transportmittel	55	55	61	64	65	70
(M) dar.: Werkzeugmaschinen Hebe- und Fördermittel Ausstattungen für die chemische Industrie Landwirtschaftliche Maschinen Schienenfahrzeuge Schiffe ⁵⁾	3 2 2 2 3 8	2 3 2 2 6 9	2 4 4 6 5 8	5 5 4 7 5 8	6 4 4 7 7 7	5 5 4 7 5 7
(N) Industrielle Konsumgüter	20	22	19	17	16	14
(O) dar.: Oberbekleidung Mode Haushaltswaren ⁶⁾	4 3 5	4 4 4	3 3 3	3 3 3	2 2 2	2 2 2
(P) Übrige ausgewiesene Waren⁷⁾	4	3	1	1	2	1
(Q) Nicht ausgewiesene Waren	14	15	13	12	12	10
(J) Ausfuhr der DDR						
(R) 1) Nach der Nomenklatur für den Außenhandel des RGW. -2) Im Jahresdurchschnitt. -3) Pflanzliche und tierische Rohstoffe, lebende Tiere, Rohstoffe für die Lebensmittelindustrie und Nahrungsmittel. -4) Chemische Erzeugnisse, Düngemittel, Kautschuk, Baustoffe und Bauelemente, industrielle Konsumgüter. -5) Einschließlich Schiffsgepäck. -6) U.a. Haushaltsgegenstände und elektrotechnische Konsumgüter. -7) Brennstoffe, mineralische Rohstoffe, Metalle, Baustoffe und Bauelemente, pflanzliche und tierische Rohstoffe, lebende Tiere, Rohstoffe für die Lebensmittelindustrie, Nahrungsmittel.						

Quellen: Außenhandelsjahrrecher der UdSSR (russisch). Berechnungen des DIW.

(S)

Key:

A. Commodity group¹

B. GDR imports

C. Fuels, mineral raw materials, metals

D. Including: Solid fuels

E. Machinery, equipment, means of transport

F. Including: Energetics installations

G. Agricultural products²

H. Other listed commodities⁴

I. Unlisted commodities

J. GDR exports

K. Chemical products, fertilizers, rubber

L. Machinery, equipment, means of transport

M. Including:

N. Industrial consumer goods

O. Including: Outerwear

P. Other listed commodities?

Q. Unlisted commodities

R. 1) According to the CEMA foreign trade nomenclature

2) Annual average

3) Plant and animal products, live animals, raw materials for the food industry, foodstuffs

4) Chemical products, fertilizers, rubber, construction materials and construction components, industrial consumer goods

5) Including equipment for ships

6) Including household appliances and electrical consumer goods

7) Fuels, mineral raw materials, metals, construction materials and construction components, plant and animal raw materials, live animals, raw materials for the food industry, foodstuffs

S. Sources:

USSR Foreign Trade Yearbooks (in Russian);

DIW (German Institute for Economic Research) computations

of cooperation between the two countries -- plan coordination, scientific-technical cooperation, specialization and production cooperation and investment participation, for example.⁶

Loss of Ground for GDR as Supplier of Capital Goods

The structure of the commodities traded continues to be very diverse⁷; it has never lost its complementary nature.

Dominating GDR exports to the Soviet Union are machine construction products. Their share of total exports to that country -- already a very high 55 percent in the 1960's -- has risen even higher in recent years -- to 70 percent in 1978.⁸ In other words, the GDR has been endeavoring to offset the rising costs of raw material imports by increasing its exports of machinery. There has been less emphasis on expanding exports of industrial consumer goods; they constituted only 14 percent of GDR exports to the Soviet Union in 1978. About half were clothing, furniture and housewares.

In the category of machinery, equipment and means of transport, several products stand out: ships and rail vehicles, agricultural machinery, machine tools, equipment for the chemical industry as well as hoists and conveyors. There has been a sharply disproportional development in exports of agricultural machinery since the early 1960's. Also expanding more rapidly than exports as a whole were those of machine tools and equipment for the chemical industry, while there was a less rapid rise for rail vehicle exports compared to overall exports to the USSR. The rate for ships, hoists and conveyors was about average.

The value of the GDR's exports -- specifically those in the capital goods sector -- figures substantially in its export statistics in several instances: In the case of machinery, electrical engineering products and vehicles, nearly 50 percent of the total GDR exports for the respective product group go to the USSR. Equally high percentages can be derived for agricultural machinery, machines for the food industry, hoists and conveyors and machine tools. Even higher are those for ships as well as for machinery and equipment for the petrochemical industry. But the Soviet Union is also an important customer for some consumer goods (men's and women's outerwear and furniture).

Conversely, the GDR is important to the Soviet Union as a supplier of several categories of goods. For instance, 18 percent of the machinery, equipment and vehicles imported by the USSR in 1978 came from the GDR. To be sure, this percentage had previously been even higher (1966-1970: 24 percent), which is to say that the USSR has recently been increasing its imports of capital goods from other countries to higher levels than that for the GDR.

Table 1. Importance of Soviet Union as market for DDR Products.

(A)	1967	1970	1975	1978
(B) Erzeugnisse des Maschinenbaus, der Elektrotechnik u. Metallurgie	48	49	48	-
(C) der Maschinen und Apparaturen für die Energieversorgung	54	49	42	-
(D) Mineralaufbereitung, -maschinen	45	38	31	-
(E) Maschinen und Ausrüstungen für die Petrochemie	60	45	66	54
(F) Werkzeugmaschinen	41	40	56	45
(G) Hebe- und Fördermaschinen	38	68	63	47
(H) Fahrzeugmaschinen	87	71	49	-
(I) Betriebsmaschinen	42	47	43	-
(J) Textilmaschinen	45	30	25	34
(K) Landmaschinen	50	41	47	56
(L) Maschinen für die Ernährungsindustrie	43	31	43	-
(M) Generatoren, Motoren, Unformier	92	33	25	-
(N) Maschinen für die Elektro- und Wasserversorgung	73	61	57	-
(O) Fernmeldeapparaturen	58	53	46	-
(P) Schienenfahrzeuge	60	72	59	-
(Q) Schiffe ⁵⁾	89	75	81	-
(R) Fahrzeuge der Feuerwehr	67	49	43	39
(S) Kabel und Polystyrolen	28	36	38	32
(T) Herrenbekleidung	74	94	53	47
(U) Damenkostümherstellung	61/83	87	84	65
(V) Spielwaren	61/83	95	76	70
(W)	39	34	35	-
(X)				

1) Anteil der UdSSR in % an der Gesamtexportfahrt der DDR in der jeweiligen Serengruppe, Quoten nach Wertangaben. -2) Entsprechend der SITC-Konvention (Teil 7). -3) Unter anderem Drahte und Kabel -4) (A) -5) speziell Schiffsbaubetrieb. -6) 1965.

Quelle: Statistische Jahrbücher der Deutschen Demokratischen Republik.

(Y)

C. Including: Machinery and apparatus for the energy industry

D. Mineral-processing machinery

E. Machinery and equipment for the petrochemical industry

F. Machine tools

G. Hoisting and conveyor machines

H. Refrigeration machinery

I. Office machines

J. Textile machines

K. Agricultural machinery

L. Machines for the food industry

M. Generators, engines, transformers

N. Machinery for the distribution of electricity²⁾

O. Telecommunications apparatus³⁾

P. Rail vehicles

Q. Ships⁴⁾

R. Crop protection agents

S. Photochemical products

T. Furniture and upholstered goods

U. Men's outerwear

V. Women's outerwear

W. Toys

X. 1) USSR's percentage share of total GDR exports in the respective commodity group: percentages based on declared values

2) According to the SITC nomenclature - Part 7

3) Including wire and cables

4) Apparatus for telephones, telegraphs, television and radio

5) Including equipment for ships

6) 1965

Y. Source: GDR Statistical Yearbooks

Key: A. Commodity group

B. Products of machine construction and electrical engineering as well as transport vehicles²⁾

Table 4. Importance of the GDR as Supplier of Selected USSR Imports¹

(A) Warengruppe	1966-2) 1970	1971-2) 1975	1976	1977	1978
(B) Maschinen, Ausrüstungen und Transportmittel	26	23	17	17	18
(C) Dar.: Ausrüstungen für die Lebensmittel-Industrie	31	28	26	33	33
(D) Werkzeugmaschinen	37	31	26	27	28
(E) Landmaschinen	40	40	41	47	44
(F) Schienenfahrzeuge	34	32	32	31	36
(G) Schiffe ³	24	30	22	22	23
(H) Kleidung und Wäsche	17	14	11	11	11
(I) Möbel	29	27	23	21	24
(J) Medikamente	5	7	9	9	9
(K) Haushaltswaren	48	37	32	30	29
(L)	1) Anteil der DDR in vH an den Importen der UdSSR in der jeweiligen Warengruppe; Quoten nach Wertangaben. -2) Im Jahresdurchschnitt. -3) Einschließlich Schiffszubehör.				
(M)	Quelle: Außenhandelsjahrbücher der UdSSR (russisch).				

Key:

- A. Commodity group
- B. Machinery, equipment, means of transport
- C. Including: Equipment for the food industry
- D. Machine tools
- E. Agricultural machinery
- F. Rail vehicles
- G. Ships³
- H. Clothing and linens
- I. Furniture
- J. Pharmaceuticals
- K. Housewares
- L.
 - 1) GDR's percentage share of USSR imports in the respective commodity group; percentages based on declared values
 - 2) Annual average
 - 3) Including equipment for ships
- M. Source: USSR Foreign Trade Yearbooks (in Russian)

Rising Prices of Raw Materials Restrict GDR Leeway on Imports

The flow of Soviet goods to the GDR has traditionally been characterized by a very high proportion of raw materials (about 50 percent, including metals). Prior to the rise in the cost of raw materials, the Soviet Union perceived this as a burden, since it costs relatively more to develop the country's resources than it does to expand finished goods industries. This was not the least of the reasons why a restructuring process was begun in the second half of the 1960's: The ratio of machinery, equipment

Table 5. Importance of the USSR as Supplier of Selected GDR Imports¹

(A)	Warengruppe	1966-70	1970	1971-72	1975	1976	1977	1978	L.	Tractors
(B)	Erdöl	92	84	89	89	89	89	89	M.	Timber
C	Erdgas	-	100	100	100	100	100	100	N.	Cotton
D	Steinkohle	52	59	67	71	66	66	66	O.	Vegetable oils ⁵
E	Steinkohlenkoks	45	36	37	36	37	36	37	P.	Grain ⁵
F	Phosphorthaltige ³ Rohstoffe	-	-	92	85	79	79	79	Q.	Preserved fish
G	Stähle	73	81	72	75	80	80	80	R.	USSR's percentage share of total GDR exports in the respective commodity group; percentages based on declared quantities
H	Formstahl ⁴	-	73	69	73	69	73	69		
I	Baumaschinen	41	35	29	29	29	29	45	2	Annual average
J	PUW	52	67	63	82	82	82	68		
K	LKW	50	33	21	18	18	18	25	3	Excluding ores
L	Traktoren	48	77	78	84	84	84	81	4	Including rails and their fittings
M	Schiffsthalle	94	96	99	99	99	99	99	5	Information derived from partner country data beginning with 1974
N	Baumölle	91	92	87	-	-	-	85	S.	Sources: GDR Statistical Yearbooks; USSR Foreign Trade Yearbooks (in Russian)
O	Präzisionsblei ⁵	67	61	18	5	-	-	-		
P	Getreide ⁵	64	39	4	-	-	-	-		
Q	Fischkonserven	-	49	70	69	69	69	83		

(R) 1) Anteil der USSR in % an den Gesamtimporten der DDR in der jeweiligen Warengruppe; Quoten nach Mengeneinheiten. - 2) Im Jahresdurchschnitt. - 3) Ohne Erze. - 4) Einschließlich Schienen und Zweirollen. - 5) Partnerlandangabe ab 1975.

(S) Quellen: Statistische Jahrbücher der Deutschen Demokratischen Republik; Außenhandelsjahrbücher der USSR (russisch).

Key:

- A. Commodity group
- B. Oil
- C. Natural gas
- D. Hard coal
- E. Hard-coal coke
- F. Raw materials containing phosphorus³
- G. Sheet metals
- H. Structural steel⁴
- I. Construction machinery
- J. Automobiles
- K. Trucks

Table 5. Selected GDR Imports from the Soviet Union

Commodity group	Item	1975		1976		1977		1978	
		Units	Value	Units	Value	Units	Value	Units	Value
C. Fuel	Oil	mt	4.9	9.2	15.1	16.3	17.3	17.5	17.5
D. Ores	Iron	mt	3	-	3.2	3.4	3.6	3.6	3.6
D. Ores	Steelmaking	mt	5.0	3.5	4.4	4.1	4.3	3.9	3.9
F. Steelmaking	Steel	mt	1.5	1.5	1.1	1.1	1.1	1.0	1.0
G. Chemicals	Chemicals	mt	2.0	2.9	2.9	2.6	3.0	2.7	2.7
H. Timber	Timber	mt	0.8	0.8	0.8	0.8	-	-	-
I. Nonferrous	Nonferrous	mt	1.2	2.5	2.7	2.7	-	-	-
J. Spire	Spire	mt	0.1	0.2	0.2	0.2	-	-	-
K. Buntmetalle ⁴⁾	Buntmetalle ⁴⁾	mt	0.2	0.2	0.3	0.3	-	-	-
L. Pig	1000 Stck.	mt	7.9	22.5	63.3	59.6	67.3	62.9	62.9
N. Gas	1000 Stck.	mt	0.4	3.2	2.3	1.6	1.9	1.9	1.9
O. Tractors	Tractors	Stck.	0	4.3	5.1	4.7	6.1	5.9	5.9
P. Beams ⁵⁾	Beams ⁵⁾	1000 t	87	97	88	69	-	74	74
Q. Sawdust	Sawdust	mt	1.4	1.4	1.9	1.2	1.5	1.5	1.5
R. Glassware	Glassware	1000 t	0	1.4	4.3	3.7	2.2	2.2	2.2
S. Ironware	Ironware	1000 Stck.	0	9	79	123	97	124	124
T. Household articles	Household articles	1000 Stck.	16	194	130	105	81	93	93
U. Others ⁶⁾	Others ⁶⁾	Stck.	-	0.3	0.9	1.0	1.1	-	-

V.) Including Grade A blast-furnace coke
legersungen -) Aus Eisen und Stahl - (1) Einschließlich Legers-
gen. - Stahlwerke. - (2) Einschließlich Mineralien.

(W.) Quelle: Statistische Jahrbücher der Deutschen Demokratischen Re-
publik. Ausgabe Industriekreis der DDR (russisch).

Sources: GDR Statistical Yearbooks;
USSR Foreign Trade Yearbooks
(In Russian)

Key:

- A. Commodity group
- B. Unit
- C. Oil
- D. Natural gas
- E. Hard coal
- F. Hard-coal coke¹⁾
- G. Iron ores
- H. Pig iron²⁾
- I. Rolling-mill products³⁾
- J. Pipes
- K. Nonferrous metals⁴⁾

and means of transport to total exports to the GDR increased from 6 percent (1961-1965) to 20 percent (1978), while agricultural products in particular⁹ -- but raw materials as well (including metals) -- lost some of their relative importance. Thus, the share of agricultural products ultimately dropped during the same period by one-third to approximately 8 percent.

The above-average increase in machinery exports (including equipment and transport vehicles) is not concentrated on just a few key products. Rather, the Soviet product mix is very broad. Especially sharp increases came in Soviet automobile deliveries, which increased eightfold between 1965 and 1975 but since then have remained steady at an annual figure of 64,000. Soviet automobiles determine the selection of imports in the GDR since they account for two-thirds of all foreign vehicles imported annually. There is an even higher relative proportion of Soviet tractors in the GDR. The most recent delivery figure of 5,900 clearly exceeded the GDR's own production (1976: 4,000).¹⁰ Their share of total [tractor] imports amounts to about 80 percent (1966 through 1970: approximately 50 percent).

There are two reasons why Soviet exports of machine construction products to the GDR have increased at only an average rate in recent years. One is that the USSR apparently has been unable to concentrate adequately on top-flight products suitable for export.¹¹ The other is that the worldwide rise in raw material costs has halted the trend toward rising export percentages for machine construction products.

Since 1975, the Soviet Union has been able to derive substantial gains from its exports of raw materials since the above-average expansion of the export value for this commodity group can be traced primarily to the price increases.¹² For instance, between 1974 and 1976 the USSR raised its prices to the GDR for selected raw materials -- representing 40 percent of the GDR's imports from the USSR -- by an average of 50 percent. In terms of volume, the GDR expanded only its purchases of oil (+ 18 percent) and natural gas (+ 13 percent) between 1975 and 1978. On the other hand, it cut back its imports of solid fuels, iron ores and presumably pig iron and rolled steel products as well. The following table shows the sharp disparity between the growth of prices and volume for oil:

Table 7. GDR Oil Imports from the USSR -- Growth by Volume and Value

(A) Jahr	(B) Einfuhrmenge (C) mill.t	(D) Einfuhrtwert (E) rd. Tsd.	(F) Erdölanteil an Importen aus der UdSSR
1970	9,3	0,13	7
1975	15,0	0,42	14
1976	16,8	0,54	17
1977	17,0	0,70	19
1978	17,8	0,89	22
1980	19,0	1,25	26
1985	19,0	2,55	34

(G) 1) 1970 bis 1976 Erdöl und Erdölprodukte. 1980 und 1985 aufgrund der vereinbarten Erdöleinfuhrten. - 2) Für 1980 und 1985 mit den Preisen der Modellrechnung ermittelt. - 3) Angenommener Zuwachs der Gesamteinfuhrten aus der UdSSR. 1980 = 12 v.H.; 1981/85 = 10 v.H. D.R.

(H) Quellen: Außenhandelsjahrbücher der UdSSR (russisch). Statistisches Jahrbuch der Deutschen Demokratischen Republik. NEUES DEUTSCHLAND vom 14. Dezember 1979 und vom 22./23. Dezember 1979. Schätzungen des DIW.

Key:

- A. Year
- B. Import volume¹
- C. Millions of tons
- D. Import value²
- E. Billions of transfer rubles
- F. Percentage share of oil in imports from the USSR³
- G. 1) Oil and petroleum products from 1970 through 1976; figures for 1980 and 1985 based on oil import agreements
- 2) Determined for 1980 and 1985 by using prices from the computer model
- 3) Assumed growth of total imports from the USSR; 1980 = 12 percent; 1981-1985 = 10 percent per year
- H. Sources: USSR Foreign Trade Yearbooks (in Russian); GDR Statistical Yearbook; NEUES DEUTSCHLAND, 14 December 1979 and 22-23 December 1979; DIW estimates.

While the volume of imports was increased by a scant 20 percent between 1975 and 1978, the value of the imports nearly doubled.

Table 8. Soviet Oil Prices in CEMA Intrabloc Trade
-- Development To Date and Computer Model

(A) Year	(B) Intrabloc- Marketpreis)		(C) Intrabloc- Handelspreis		(D) Preis für Ausfuhr (t.)	
	US-Dollar je Barrel	US-Dollar je Tonne ²⁾	US-Dollar je Barrel	US-Dollar je Tonne ³⁾	US-Dollar je Barrel	US-Dollar je Tonne ⁵⁾
1971	2.21	10.70	13.60	- 11	13.60	
1972	2.48	15.20	15.60	15	14.10	
1973	3.30	18.30	16.00	3	14.25	
1974	11.58	64.90	18.10	13	18.30	
1975	10.72	56.30	13.90	87	28.20	
1976	11.51	63.60	37.10	9	32.10	
1977	12.40	67.35	43.80	29	41.10	
1978	12.70	63.75	54.20	24	50.40	
1979	16.00	77.25	63.30	17		
1980	24.00	110.00	65.00	4		
1981	26.40	121.00	76.40	16		
1982	29.00	133.00	87.90	16		
1983	31.95	146.00	101.00	15		
1984	35.15	161.00	117.50	16		
1985	38.65	177.00	134.20	14		

(J)

(1) Arabisch libet, 100 Persianischer Gour, API-Büche 34.0 bis 34.9°. Dieser Preis wird von der DDA offensichtlich als Referenzpreis zugrunde gelegt. Vol. 308 Außenwirtschaft. Hierbei handelt es sich um den jahresdurchschnitzen Preis. Für 1980: Jahresdurchschnitt ab 1981: 10% Steigerung gegenüber dem Vorjahr angenommen. (2) 1 Tonne = 7.37 Barrels. 1 US-Dollar (1972): 0.83 TR (1971); 0.75 TR (1973); 0.75 TR (1972); 0.75 TR (1974); 0.76 TR (1975); 0.72 TR (1976); 0.74 TR (1977); 0.68 TR (1978); 0.66 TR (1979); 0.62 TR (from 1980 on).

(3) Actual price for oil and petroleum products from 1971 through 1976: figures taken from Soviet foreign trade statistics. Beginning in 1977, figures are estimates based on the average of the world market prices from the preceding 5 years. Estimated crude oil prices for 1975 and 1976 are 32.80 TR per ton and 34.00 TR per ton.

(Key continued on following page)

(X) Quellen: Außenhandelsjährlicher der USSR (russisch). Statistische Jahrbücher der Deutschen Demokratischen Republik, DDR Außenwirtschaft.

4} Through 1976 on the basis of actual values
5} According to Soviet foreign trade statistics;
beginning in 1977, figures are estimates.
R. Sources: USSR Foreign Trade Yearbooks;
GDR Foreign Trade Yearbooks;
DDR AUSSENWIRTSCHAFT.

A projection can be attempted with a computer model. Assumed are a 10-percent annual increase in the world market price for oil, a dollar rate that remains the same as the average for 1979 and unchanged pricing principles within CEMA.¹³ Under these conditions -- and provided that accounts are balanced with the Soviet Union -- in 1980 the GDR will have to use one-fourth of its exports to the Soviet Union to finance crude oil imports; by 1985 the proportion will be one-third.¹⁴ It was just 7 percent in 1970. But this not only substantially cuts down the GDR's leeway for other imports, this background should make it extremely difficult for the GDR to finance an expansion of oil imports in terms of volume as well. Thus, it is scarcely surprising that there was virtually no increase in the import volumes of statistically recorded imported goods between 1975 and 1978. This trend will presumably continue through 1985; even now it can be deduced from published agreements¹⁵ (see graph) that imports of oil, natural gas and hard coal will be stagnant from 1981 on. The GDR is thus faced with the problem of achieving economic growth in the face of the virtual impossibility of increasing raw material consumption.

Soviet deliveries are extraordinarily important to development of the GDR economy, poor as it is in raw materials. A total of 84 percent of its energy imports¹⁶ comes from the USSR, an amount equal to approximately 25 percent of the GDR's domestic energy consumption. Moreover, the Soviet Union provides a very large percentage of deliveries of iron ore (75 percent),¹⁷ metals¹⁸ and some agriculture and forestry products (cotton, timber). Nevertheless, this very one-sided dependency on deliveries has also proved to be an advantage for the GDR economy in recent years. Its foreign economic burdens have been lessened by the CEMA practice of delayed adjustment to price trends on world markets¹⁹; consequently, they have not been as great for the GDR as for countries which have to purchase their raw materials on the world market. Moreover, in view of the emerging tendency to use raw material exports as a political tool, raw material supply to the GDR from within the bloc²⁰ offers advantages.

To be sure, the Soviet Union's economic difficulties involved in increasing its production of raw materials during the next five-year plan period will also affect the GDR. For economic and political reasons, the GDR will be able to supplement these deliveries only to a very limited extent with imports from OPEC states.²¹

Figure 1. Development of Soviet Energy Raw Material Deliveries to the GDR
-- 1965 Through 1985

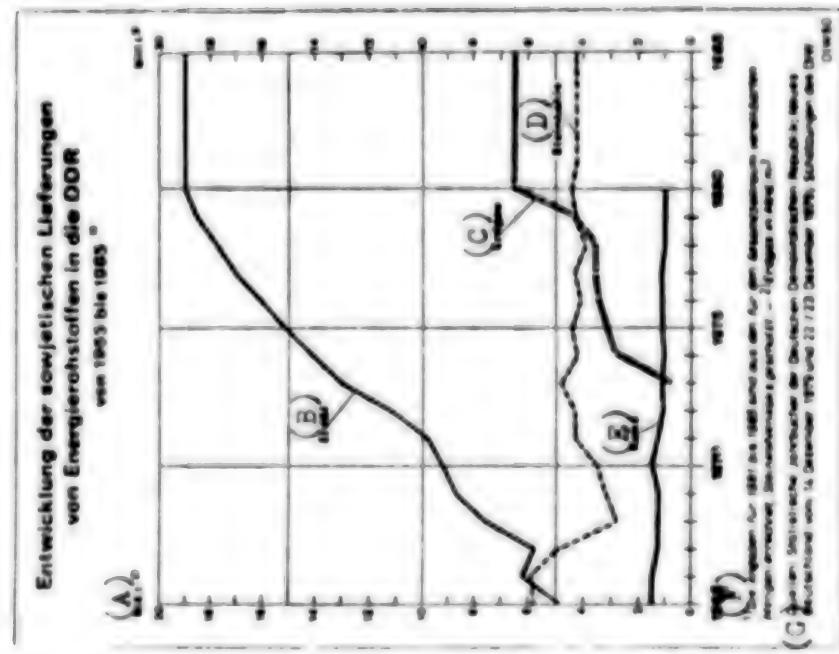


Table 9. Importance of GDR as Market for Selected Soviet Exports¹

Commodity group (A)	1966-70		1971-72		1976	1977	1978
	1970	1975	1975	1972	1976	1977	1978
(B) Maschinen, Ausstattungen und Transportmittel (Code no.: P00)	10	12	12	12	12	12	9
D. Diesel und -produkte	25	22	19	18	18	16	16
E. Elektrische Maschinen, Anlagen und Apparate	9	7	7	7	7	9	9
F. Erdgas	-	-	-	-	17	17	19
G. Holzwerkzeuge, - geräte und -produkte	36	38	41	43	43	43	43
H. Holzschnittholz	18	19	17	19	21	21	21
I. Papier	21	21	23	22	23	23	23
J. Baumwolle	17	12	9	9	9	10	10
K. Textilie	25	20	11	22	-	-	-
(L) Quotient der DRA in % am Gesamtexporten der UdSSR in der jeweiligen Kategorigruppe; Quoten nach Wertangaben, -2) im Jahres- durchschnitt.							
(M) Quelle: Aufschlussjahrbücher der UdSSR (russisch).							
Key:	A.	Commodity group					
	B.	Machinery, equipment and means of transport					
	C.	Including automobiles					
	D.	Oil and petroleum products					
	E.	Coal					
	F.	Natural gas					
	G.	Rolling-stock products					
	H.	Timber					
	I.	Paper					
	J.	Cotton					
	K.	Grain					
	L.	1) GDR's percentage share of total USSR exports in the respective commodity group; percentages based on declared values					
	M.	2) Annual average					
		Source: USSR Foreign Trade Yearbooks (in Russian)					

This great dependence of the GDR upon receiving supplies from the Soviet Union is not matched by any corresponding delivery dependency on the Soviet side. The GDR is an important sales market for the USSR only for a few products, such as rolling-mill products (GDR has a 43-percent share of total Soviet exports), coal (19 percent) and automobiles (16 percent). Although delivery percentages for paper (23 percent) and timber (21 percent) are relatively high, these goods are of lesser importance to the Soviet economy.

Outlook: Continued Lessening of Interdependence

Chances for the future growth of trade between the GDR and USSR have to be assessed as minimal: For one thing, persistent increases in the cost of raw materials will probably continue to worsen the GDR's capacities for financing.²² For another, the Soviet Union is apparently unable or unwilling to further expand its raw material deliveries to the GDR. Soviet deliveries of energy sources will remain stagnant for the first time in the history of this kind of trade. Moreover, in view of the preponderance of raw materials in Soviet deliveries to the GDR, it is not expected that finished goods (machinery, equipment, means of transport) will fill the expansion gap.²³

These lessened expectations are confirmed by the planning for the next few years. A trade volume of 48 billion transfer rubles²⁴ has been agreed upon for the 1981-1985 period. Although this does signify an increase totaling 27 percent over the figure for the last five-year plan period, going by the value of the turnover planned for 1980 (9 billion transfer rubles),²⁵ this corresponds to an average real increase of only 2.2 percent. Of course, this planned growth could be exceeded as the result of actual developments, but the bilateral trade of both countries will nevertheless presumably grow at a weaker pace than will their overall foreign trade operations. Thus, there should be a continuation of the trend toward a lessening of interdependence that has already been observed for past years.

Basically, such a trend does not have to be assessed negatively at all, since an intensified regional diversification would reduce the preponderance of the Soviet Union as a GDR trading partner. However, this thesis would apply only if the USSR were to reduce its deliveries of machinery. The GDR would thus have more freedom to import from countries whose technologies are more highly developed. To be sure, the direction and general conditions of a continuing process of decreasing interdependence are presently not advantageous to the GDR: Since important raw material deliveries by the Soviet Union are stagnating, and since the tight foreign exchange situation makes it possible to procure at best only limited replacements from Western countries, the result has to be negative effects on future production and growth possibilities.

A further worsening of the terms of trade is also burdening the GDR in terms of the use of its national product. The USSR has hitherto kept these burdens within bounds by extending credits. Also benefiting the GDR has been CEMA's practice of delaying the adjustment of export prices to world market prices. Although the substantial prosperity gap between the two countries would argue for a change in this policy, the Soviet Union must consider in the future that taking too frequent advantage of the leeway offered by the world market for increasing prices, and a rigid insistence on balancing the trade deficit, could place the GDR in greater economic straits, thus posing increased political problems as well. And by reason of the disparate dimensions of the two countries, no adequate benefit would accrue to the Soviet Union.

FOOTNOTES

1. Statistical accounting unit used by the GDR since the mid-1960's in recording its foreign trade. Its conversion rate is derived from a specific relation to the transfer ruble (TR). This relation has thus far remained constant: 1 transfer ruble = 4.67 VM. By contrast, the conversion rate in relation to Western currencies has fluctuated along with changes in parity between the TR and convertible currencies; in 1978, DM 0.634 equaled 1 VM.
2. Cf Jochen Bethkenhagen and Heinrich Machowski, "Effects of New Foreign Trade Prices in CEMA," WOCHEBERICHT DES DIW, No 17, 1975.
3. The GDR's total foreign trade turnover increased by 9.8 percent from 1970 to 1979; that of the USSR rose by 11.4 percent.
4. Poland, Bulgaria, the CSSR and Hungary gained shares of the USSR trade volume ranging from 7 to 10 percent in 1978. The FRG had the largest share among Western countries, with 5 percent.
5. Cf Jochen Bethkenhagen and Horst Lambrecht, "Advantages and Disadvantages of GDR Integration in CEMA," VIERTELJAHRSHEFTE ZUR WIRTSCHAFTSFORSCHUNG DES DIW, No 3, 1979, p 265.
6. Cf Jochen Bethkenhagen, "Development of Economic Relations with the Soviet Union" --"Three Decades of GDR Foreign Policy," edited by Hans-Adolf Jacobsen, Gert Leptin, Ulrich Scheuner and Eberhard Schulz, Munich, Vienna, 1979, p 400 f.
7. In the absence of GDR statistical data, it can be inferred only from Soviet sources. And there are certain limitations here as well, for substantial portions of Soviet statistics are not categorized. This applies chiefly to GDR imports.

8. This category also dominates total GDR exports (1978: 55 percent), but not as much as with exports to the USSR. By contrast, these products are not so strongly represented in GDR trade with the West.
9. Cf "Central Germany's Foreign Trade with the Soviet Union in the Years from 1955 to 1963," WOCHENBERICHT DES DIW, No 14, 1965.
10. Cf "CEMA Statistical Yearbook" (in Russian), 1978, p 83.
11. This is also demonstrated by the fact that the 24-percent share of specialized products in the USSR's machine construction exports to the GDR is only about half as high as the GDR's corresponding deliveries to the USSR (1977: 46 percent). Cf V. Moiseyenko, "Specialization and Production Cooperation in Machine Construction. An Important Factor in the Development of Trade Among the CEMA Countries," AUSSENHANDEL (USSR), No 2, 1979, p 6.
12. Cf Jochen Bethkenhagen and Horst Lambrecht, loc cit, p 270.
13. Adopted at the 93rd session of the executive committee were "recommendations on contract prices in reciprocal trade by CEMA member nations for the 5-year period ahead." At the same time, discussion on "improving the methodology of pricing" continued. No details are available yet regarding the content of these recommendations. NEUES DEUTSCHLAND, 19-20 January 1980.
14. Assuming that the price of oil increases by 20 percent annually beginning in 1981, the percentage of outlays for oil imports would rise to more than 40 percent.
15. Cf NEUES DEUTSCHLAND, 14 December 1979, 22-23 December 1979 and 6 February 1980.
16. Hard coal, hard-coal coke, oil and natural gas. The Soviet Union is also an important supplier of equipment for the GDR energy industry. The power plants built with Soviet equipment -- among them Thierbach, Boxberg, Nuclear Power Plant-North -- provide more than one-third of the electricity produced in the GDR. Cf Nikolai Baturin, "USSR-GDR -- 30 Years of Economic Cooperation," AUSSENHANDEL (USSR), No 9, 1979, p 12.
17. Cf Kurt Enkelmann, "The GDR, 30 Years -- 30 Years of Trade Relations with the USSR," SOVYETISCHER EXPORT, No 5 (122), 1979, p 23.
18. According to less recent data, the Soviet Union covered GDR import requirements as follows: aluminum, 100 percent; zinc, 70 percent; lead, 60 percent. Cf BERLINER ZEITUNG, 26 March 1974.

19. According to information from Erich Honecker, the GDR has been paying between 30 and 40 percent less for its oil and natural gas imports from the Soviet Union "than the average price has amounted to on the capitalist market at this time." Cf NEUES DEUTSCHLAND, 26-27 January 1980. The computer model on the development of CEMA intrabloc market prices for petroleum shows a difference of only 22 percent. This is further confirmation that the GDR -- as it has in past years -- is obtaining its oil at below-average prices. The price difference in 1976 -- the last year for which official figures are available -- amounted to 15 percent.
20. This policy is apparently to be maintained: "The imports that continue to be essential (editor's note: raw materials and fuels) are to be assured in the future as well chiefly by means of socialist economic integration." Cf Willi Stoph, "On a Proven Course," HORIZONT, No 16, 1979.
21. "We know now that 1990 will see only insignificantly larger amounts of crude oil for petroleum processing than are available today." Cf Siegfried Nowak, Cuenter Friedrich, "Why a Deeper Cleavage on Oil?" DIE WIRTSCHAFT, No 7, 1979, p 19.
22. In the case of several commodities this is being reflected in a reduction of future imports. For instance, the agreement on automobiles and tractors concluded for the 1981-1985 period calls for only half the volume of imports from the preceding 5 years; cf NEUES DEUTSCHLAND, 6 February 1980.
23. The USSR is seeking a greater than average expansion of its finished goods exports. Cf O.T. Bogomolov, "Thirty Years of CEMA and Scientific-Technical and Economic Cooperation Between the USSR and the GDR," WIRTSCHAFTSWISSENSCHAFT, No 11, 1979, p 1290 f.
24. Cf NEUES DEUTSCHLAND, 14 December 1979. The turnover figure of 240 billion valuta marks cited at the same time by Honecker had been converted not with the previously valid coefficient (1 transfer ruble = 4.67 valuta marks) but apparently merely on the basis of a rough 1 : 5 ratio. Subsequent calculations are therefore based on values in transfer rubles.
25. Cf NEUES DEUTSCHLAND, 23 January 1980.

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INTERNATIONAL AFFAIRS

BRIEFS

CSSR-HUNGARIAN BUS--The Ikarus factory in Szekesfehervar (Hungary) has begun producing a new 23-seat bus--the Ikarus-Avia 543--for which Czechoslovak enterprises supply the engine and chassis. [Prague MLADA FRONTA in Czech 10 Mar 80 p 2 AU]

CSSR, POLISH MINISTERS MEET--On 5 March V. Ehrenberger, CSSR minister of fuels and power and W. Lejczak, Polish minister of mining, met in Ostrava to discuss topical questions concerning mutual cooperation. In particular, they assessed the problem of coal extraction at the Czechoslovak-Polish border in the area of the Czechoslovak Youth Union mine in Stonava and the Kaczyce-Pogwidzow mines in Poland. [Bratislava PRAVDA in Slovak 6 Mar 80 p2 AU]

NEW COMPUTER CENTER--On 5 March a new computer center of the federal price office was opened in Prague, in the presence of M. Sabolcik, minister in charge of the management of the federal price office. The center is equipped with an EC 1040 computer from the GDR, which is the 46th computer of the Robotron firm from Berlin put into operation in the CSSR. [Bratislava PRAVDA in Slovak 6 Mar 80 p 2 AU]

CSO: 2400

ENERGY MINISTER INTERVIEWED ON CONSERVATION

Sofia IKONOMICHESKI ZHIVOT in Bulgarian 30 Jan 80 pp 1-3

[Interview with Nikola Todoriev, minister of power supply, conducted by correspondent Atanas Dimov: "A Most Important National Task"]

[Text] The annual National Competition for Conservation of Energy and Fuels, the fifth consecutive such competition this year, has proved its role and high effectiveness in mobilizing collectives and individuals for achieving additional conservation based on the state task for the corresponding year. The BCP Central Committee Letter to the party members and all working people on the fulfillment of the 1980 and 1981 socioeconomic plans for the development of the country call for conservation in everything and everywhere, and for intolerance of carelessness and waste. The thrifty and rational utilization of raw and other materials, fuel, and energy is a primary aspect of the fulfillment of the new two-year plan.

Bearing all this in mind, correspondent Atanas Dimov asked Comrade Nikola Todoriev, minister of power supply, to answer a few questions.

Question: 1979 was an important period in the fulfillment of the Seventh Five-Year Plan. How did it end and what were the results with which the Ministry of Power Supply entered the new year--the last of the current five-year plan?

Answer: The fulfillment of the counterplan by the collectives of our ministry is multidimensional. Let me emphasize, above all, that we entirely fulfilled our most important task of ensuring the supply of the national economy and the population with the necessary electric and thermal power, coal, and briquettes. We carried out this assignment in close connection with measures aimed at upgrading the effectiveness and quality of all production facilities and activities, as confirmed by last year's results.

For example, compared with 1978, in 1979 the power plants within the system of the Ministry of Power Supply produced 5.7 percent more electric power. A particularly positive result reflecting the efforts to upgrade the effectiveness of our power industry and save on imported fuel is the fact that 65.6 percent of the increased electric power output came from power plants burning local fuel. Compared with 1978 their performance rose 8.6 percent. Last year the Kozloduy nuclear power plant and the hydroelectric power plants considerably increased their electric power generation.

At the same time, the production of thermal energy rose 3.1 percent. Coal extraction reached 29,470,000 tons or, compared with 1978, an increase of 2,380,000 tons; at the Maritsa-Iztok complex alone output rose 11.9 percent. Compared with 1978 the population received 12.4 percent more coal.

Along with such improved physical and value indicators, last year specific outlays of conventional fuel per kilowatt hour electric power dropped from 393.9 grams in 1978 to 387 grams in 1979. Electric power outlays for internal requirements was reduced by 0.2 percent, including 0.12 percent by thermoelectric power plants. Electric power transportation, transformation, and distribution losses were reduced by about one percent. All this enabled the collectives within the ministry's system to end the penultimate year of the Seventh Five-Year Plan with considerably improved indicators characterizing the effectiveness and quality of our production-economic activities.

Question: In the past two years the Council of Ministers passed two exceptionally important decrees--No 58 of 22 December 1978 calling for the strict conservation of liquid fuels and electric power, and No 23 of 18 May 1979 on additional conservation of energy and fuels. Preceding them, the National Program for the Effective Utilization of Material Resources in the Seventh Five-Year Plan was passed in 1976. Bearing in mind these important documents, how would you describe the achievements in the struggle for the conservation of energy and fuels, which would also include the National Contest, annually sponsored by EKONOMICHESKI ZHIVOT?

Answer: Before giving you a specific answer to the question, allow me to emphasize that in his remarkable speech to the 28 November 1979 CPSU Central Committee Plenum, Comrade Leonid Brezhnev ascribed the greatest possible significance for the struggle for the conservation of energy and fuels. After stressing that the Soviet Union has the greatest fuel-energy complex in the world, he said: "Yet, whatever the pace at which we are developing the power industry, the conservation of fuels and energy will continue to remain a most important national task."

The BCP Central Committee Letter to the party members and all working people on the fulfillment of the plan for the socioeconomic development

the country in 1980 and 1981 considers the thrifty and rational utilization of raw and other materials, power, and fuels, a most important matter in the struggle for the fulfillment of the plan. In this connection the task is to promote with new emphasis the initiative of the working people of Plovdiv Okrug for the conservation of material and energy resources and the fulfillment of the pledge of the Bulgarian Trade Unions ensuring 1.1 billion leva's worth of savings by reducing material outlays over and above the state assignments for 1979 and 1980.

Last year the results of the fulfillment of the National Program for the Effective Utilization of Material Resources in the Seventh Five-Year Plan were reported. The 1979 results have not as yet been processed but the 1978 ones showed savings for the national economy of 1.1 billion kilowatt hours of electric power, over 100,000 tons of gasoline, about 220,000 tons of diesel oil, 900,000 tons of fuel oil, and 1.2 million tons of coal. Through the National Contest for Conservation of Energy and Fuels alone, it was helped to save 422.9 million kilowatt hours of electric power and 462,000 tons of fuel, totaling savings of 76,502,428 leva. We are fully confident that in 1979 the savings and economic results achieved will be even higher.

In 1980 relative savings of material outlays worth about 440 million leva must be achieved. A considerable share of such savings will be in energy and fuels.

However, in order to achieve such conservation, the struggle must be waged in several directions. Above all, priority should be given to goods and technologies through which power and fuels are saved. We must boldly stop the production of highly energy intensive items. In this respect the blueprints for enterprises should focus on modernizing items and technologies and the utilization of secondary power resources--fuels, thermal energy, condensate, etc.; modernizing combustion systems, industrial boiler systems, and industrial furnaces; greatly enhancing the use of nighttime energy compared with the present, and so on.

The economical utilization of fuel and energy resources could be improved, as Comrade Todor Zhivkov stressed in his report submitted at the 31 October 1979 National Conference, by a factor of two or three in the various economic sectors. This could be achieved only through the comprehensive automation of all processes using energy and fuels and, above all, the extensive use of electronics. "The use of electronics alone," Comrade Todor Zhivkov said at the 31 October 1979 conference, "could yield great savings of raw materials, materials, energy, and fuels."

That is why automated control systems of technological processes will assume the main role in the movement for achieving substantial energy and fuel conservation in all national economy sectors and in the communal-consumer sector, also promoted through the National Contest

sponsored by EKONOMICHESKI ZHIVOT. In this respect our cadres on the scientific front should make a far greater contribution. More than ever before they must develop scientific research, planning-design, and engineering-application activities in order to organize the type of updating of goods and technologies which would ensure high energy effectiveness.

Additionally, a particularly important immediate task is that of organizing the conservation of fuel and energy on a normed economic basis. This requires, from the very beginning of this year, to make outlays norms of power and fuel entirely consistent with the counterplans formulated by the collectives in order to ensure their successful implementation. Further, after each new scientific and technical accomplishment in a corresponding production facility, the technical norms of power and fuel outlays must be immediately updated and made consistent with the task of reducing production costs.

Question: As we know, the 1980 plan is different from the plans for the previous years because it sets the assignments for the final year of the Seventh Five-Year Plan. At the same time, the new year will be the base of the Eighth Five-Year Plan and the new plan will be the binding link between the seventh and eighth five-year plans. That is precisely why it is particularly important to our socioeconomic development, present and future.

Bearing in mind that the Eighth Five-Year Plan will be, as defined by Comrade Todor Zhivkov, the five-year plan of scientific and technical progress and the intellectualizing of production and other realms of the national economy, what role will our power industry plan in the socioeconomic development of the country and what will be its contribution to the struggle for energy and fuel conservation?

Answer: The 1980 and 1981 plan of the Ministry of Power Supply is based on the high criteria and requirements of the National Party Conference. The production of electric and thermal power will be developed at a faster pace. Compared with 1979 it will be 11 percent higher in 1980 and compared with 1980, 9 percent higher in 1981. At the same time, we shall convert to the even more extensive utilization of local power resources. The production of electric power in 1980 and 1981 will rise, respectively, 13.7 and 8.5 percent, and of thermal energy, by 16.1 and 9.9 percent. Compared with 1979 coal extraction will rise 17.7 percent while the production of briquettes will be increased 12.8 percent.

As we may see, in 1980 and in the first year of the Eighth Five-Year Plan our power industry, despite the high initial base already reached, will continue to develop at a high pace and scale which, compared with other national economic sectors, will be quite faster. This emphasizes,

yet once again, the proper policy of the party's central committee on the faster development of sectors considered bearers of technical progress, power industry above all.

The fast development of the sector in terms of value and basic types is accompanied by a drastic increase in the effectiveness and quality of output and of all other activities. For example, compared with 1979, 1980 labor productivity will be 17.1 percent higher while average wages will rise 9.7 percent.

In order for this high development of the sector to be reached this year, particular attention in mobilizing the force and resources of the country must be paid to the timely completion, start-up, and reaching planned capacity of new power generating facilities. This year, for example, the power industry must be expanded by another 887 megawatts and 500 gigacalories as the result of the expansions of the Kozloduy nuclear power plant, and the Varna, Maritsa-Iztok III, and Sofia thermoelectric power plants. Coal extraction capacities will be increased by 2.4 million tons this year and by yet another 1.2 million tons in 1981.

Along with the basic capacities, the main factors for the fulfillment and overfulfillment of the new assignments, on which we have directed the efforts and resources of the sector, are the further substantial improvements in the utilization of production capacities; the preparedness and reliability of work of power generating machinery and equipment; the organized and adamant struggle for lowering material outlays for the production of energy and, particularly, energy used for internal plant requirements, and of the specific outlays of conventional fuel in electric power plants, reducing losses in the transportation, transformation, and distribution of electric power, and so on.

The participation of collectives and individuals in conservation over and above state assignments, annually promoted through the national contest sponsored by IKONOMICHESKI ZHIVOT must become even more widespread in 1980 and 1981 and savings rise even further. This will be one of our major contributions in answer to the high criteria and requirements formulated by the National Party Conference and in the 1980 and 1981 plan.

110: 2200

ACTIVITIES OF 'KHMIMPORT' EXPANDING

Sofia IKONOMICHESKI ZHIVOT in Bulgarian 30 Jan 80 p 9

Article by Klemanso Grozdanov: "Toward an Ever More Effective Foreign Trade"

[Text] The collective of Khimimport, the biggest Bulgarian foreign trade enterprise, fulfilled its 1979 plan for all indicators. Imports and exports of over 60,000 chemical products from a number of socialist, capitalist, and developing countries were carried out with an excellent organization of the work, high conscientiousness, paralleled labor up-surge, and on time. This ensured normal conditions for the rhythmical development of production processes not only in the chemical industry but in all related sectors of the national economy. Let us stress that last year Khimimport had a positive trade balance of hundreds of millions of foreign exchange leva. This is an exceptional achievement against the background of the sharp competitive struggle being waged in the international capitalist market.

This year Khimimport faces even more responsible and more complex problems. First of all, we must import and export millions of tons of energy carriers, chemical raw materials, semifinished products, and finished goods. Hundreds of mutually profitable contracts must be signed. Contractual obligations must be carried out strictly.

The Khimimport management has drafted substantiated measures for the successful solution this year of such highly responsible assignments. The collective is in an optimistic mood and, from the very first days of the year, has mobilized its efforts for the proper fulfillment and fulfillment of the 1980 plan for all indicators. Its efforts are focused on ensuring the best possible conditions for the marketing of the goods produced by over 30 big modern chemical plants and combines, instructed and operating in our country as results of our cooperation mainly with the Soviet Union and with the other CEMA-member countries. Khimimport is actively struggling for the further intensification and expansion of socialist integration in the chemical industry. This enables us not only to organize large-scale, specialized, and highly

effective output but to sell goods at advantageous prices. This year the share of specialized goods will exceed 30 percent of our mutual trade in chemical goods with CEMA-member countries. Khimimport deserves part of the credit.

The commissioning of a number of new chemical and petrochemical industry projects, to which Khimimport contributed by importing labor tools, represents the organization of the production of industrial raw materials and materials extremely needed by the basic industrial sector, drastically upgrading the effectiveness of the entire national economy. The collective of Khimimport is engaged in tremendous activities along the line of expanding our production and export list by including the most promising chemicals in demand on the international market. Thoroughly studying the changes expected in the various international markets, it provides the guidelines for progressive changes in the chemical production structure. At the same time, the Khimimport collective is actively promoting the conclusion of new long-term import and export agreements covering various types of chemicals at mutually advantageous prices. Furthermore, it emphasizes the prompt imports and exports of stipulated quantities of chemicals, their quality, and the reduction to a minimum of losses and outlays of their transportation to the consumer. In order to increase even further the results of the import and export of chemicals, Khimimport specialists daily follow, study, and profoundly analyze the circumstances on the international markets and suggest expedient measures for their optimum utilization. Their attention is focused on the further intensification and improvement of relations between Khimimport and combines and plants. On the basis of forecasts of prices and requirements of foreign markets for specific types of chemicals, the senior workers of this foreign trade center properly guide the producers to rapidly organize and expand the production of such items. They are very active in improving our country's investment policy. This is not a self-seeking purpose but a clear vision of the great role assigned to our foreign trade in promoting intensive expanded socialist reproduction.

Khimimport is successfully resolving major problems of the production and trade in chemicals by expanding our economic operation with developed capitalist countries. Compared with 1979 exports and imports of chemicals from and to such countries in 1980 will be, respectively, 52 percent and 14 percent higher. In other words, the trade balance will be far bigger compared with 1979. Khimimport imports from the developed capitalist countries goods unavailable in CEMA countries in sufficient quantities, and exports high quality chemicals in great demand. The enterprise takes into consideration the monopolizing of chemical production in these countries and is successfully surmounting artificial barriers they erect on the way to the acquisition and application of contemporary scientific and technical achievements, the expansion of the market of Bulgarian goods, and the conclusion of long term

agreements for industrial cooperation with the most famous capitalist companies such as Ziba-Geigy, Sandoz, ICI, ENI, Hoechst, and others, with a view to organizing the production of polypropylene, polyethylene, ethylene oxide, polyvinylchloride, plastics, synthetic resins, and so on.

Khimimport devotes great efforts to the building of mixed enterprises with companies of developed capitalist countries, for this contributes to expanding the export of our chemicals and concluding with Western chemical concern and companies general agreements of a comprehensive type.

In answer to the decisions of the National Party Conference and the BCP Central Committee Letter to party members and all working people of December 1979, starting with this year, the Khimimport collective has been consistently and successfully resolving its problems, ensuring normal conditions for the rhythmical development of production activities in the chemical industry, and guaranteeing the fulfillment of the state's foreign exchange plan.

1980
100: 2200

OFFICIAL DWELLS ON DEVELOPMENT OF SELF-SUFFICIENCY SYSTEM

Sofia IKONOMICHESKI ZHIVOT in Bulgarian 6 Feb 80 pp 1, 10

[Article by Grigor Lilov, secretary of the commission in charge of managing the population's self-sufficiency system of the Council of Ministers: "The Self-Sufficiency System at a New Stage"]

[Text] What are the positive results of the application of the system for population self-sufficiency in 1978 and 1979? The agroindustrial complexes--the main economic base for population self-sufficiency. Let us enhance the role and increase the responsibility of *obshtini* managements in the further efforts to improve the system's management.

As we know, the task of applying the system for the self-sufficiency of the population in settlement systems with basic agricultural commodities on the national level has been entrusted to the National Agroindustrial Union, the Ministry of Internal Trade and Public Services, and the Central Cooperative Union and, in the okrugs, to the executive committees of okrug people's councils. In this respect, the newly developed settlement systems play a particularly important role.

The results achieved of the application of the self-sufficiency system in 1978 and 1979 confirmed the correctness of the decision made at the joint meeting of the BCP Central Committee, Council of Ministers, BZNS Administrative Council, and National Council of the Fatherland Front on increasing agricultural production and improving supplies to the population of fruits, vegetables, meat, milk, eggs, and fish.

Council of Ministers Decree No 1 of 21 January 1980 introduces substantial amendments to the systems of population self-sufficiency in settlement systems. The new feature is that the entire responsibility for the production of agricultural commodities needed to meet the needs of the population for basic agricultural products is entrusted to the agroindustrial complexes and other agricultural organizations which will also be in charge of the private plots.

Under the guidance of the party's Central Committee, the okrug BCP committees and okrug people's councils formulated programs and carried out extensive work to develop the necessary organization for the application of the system.

How are the positive results achieved in this area over the past two years manifested?

distributed among the population were additionally nearly 600,000 acres of land either neglected or left unused by the public farms. Over 150,000 workers and employees were allocated 100 square meters of land each, in the vicinity of the settlements, to grow vegetables to meet their household requirements. The number of people participating in agricultural production in their free time rose by 300,000. Over 1,200 auxiliary farms of enterprises, organizations, and establishments were organized.

The main, the most essential result, however, was that within that time the pace of agricultural output stabilized. A positive trend toward strengthening animal husbandry in public and private farms appeared. Animal husbandry output rose 10.5 percent.

Compared with 1977, measures aimed at improving animal nutrition, increasing the number of heads of livestock and enhancing the level of breeding (along with some other measures) resulted in 1979 in the following additional output: milk, 13 percent; meat, in slaughtered animals, 9 percent; eggs, 13 percent; and fresh water fish, 44 percent.

Similar results were achieved in crop growing as well. Over the two-year period grain production rose eight percent. The production of vegetables, fruits, and potatoes rose.

Such successes in animal husbandry and crop growing made it possible to improve population supplies. Compared with 1977, the 1979 per capita consumption rose as follows: milk, by 40 liters; eggs, by 23; vegetables, by 87 kilograms; fruits, by 6 kilograms; and meat, by 2 kilograms.

The specific and profound study of achievements, however, indicates that the decisions on applying the system for population self-sufficiency in settlement systems are not being entirely implemented everywhere and by everyone concerned. One of the main requirements was to use the system of population self-sufficiency for basic agricultural commodities for the creation of conditions for the regular year-round delivery of supplies to the population not only in the country at large but within each settlement system.

This called for looking at self-sufficiency problems in a new light and in accordance with the stage of the country's socioeconomic development.

In his statement at the January 1980 national conference on problems of self-sufficiency, Comrade Todor Zhivkov pointed out that the further enhancement of the living standard of the people and the fuller satisfaction of increased requirements call for raising the efforts to apply the self-sufficiency system to a new stage. The tasks related to the further growth of agricultural production must be assumed entirely by the agroindustrial complexes. Private and enterprise farms must be organically linked with the public farms and become their natural extension.

"We," said he, "will develop the individual and auxiliary farms. However, the agroindustrial complexes remain the base. It is they that could guarantee the necessary output to meet population requirements."

The self-sufficiency system is developing as part of our socialist planned economy and is based on public, auxiliary, and private farms. The main share, however, is that of the public farms. This is natural, for the agroindustrial complexes are big agricultural organizations with machinery, land, scientific institutes, and agricultural specialists. That is why the agroindustrial complexes are, and will remain, the main economic base for self-sufficiency.

As was emphasized, the private plots are also a major reserve within the self-supply system. Currently they total 6,100,000 decares and produce 33.7 percent of all agricultural commodities, including 39.5 percent of the meat, 25 percent of the milk, 53.2 percent of the eggs, and 27.4 percent of the vegetables.

A considerable percentage accounted for by the private plots in resolving self-sufficiency problems calls for the adoption of a responsible attitude toward them and for the creation of conditions for their further development and strengthening. That is why today the definition provided by Comrade Todor Zhivkov on the nature of the private plots is particularly applicable. He stressed that, "Private plots are organically linked with large-scale socialist agriculture and are its natural extension. They are the auxiliary farms of cooperative farmers, workers, and employees directly involved in public production, using no hired labor. Under the present socioeconomic conditions quality changes have taken place in the private plots. They have and must have the nature of socialist private plots as the extension of socialist production process." It is precisely this that calls for the organization and management of the private plots to become consistent with objective development conditions and the enhancement of the role of the agroindustrial complexes within the settlement systems and the national agroindustrial union as a whole in order to ensure the full application of the population self-sufficiency system. In other words, self-sufficiency must rely mainly on the public farms. This is the way for coordinating dangers of public and private farming and for creating

real prerequisites for radical changes in the utilization of the land, labor resources, and technology, with a view to drastically increasing agricultural production in the public, auxiliary, and private farms.

In order to accomplish this, the Council of Ministers has resolved the following:

As of 1980 tasks related to the production of agricultural commodities for population self-sufficiency in settlement systems and resources for their execution shall be assigned to the National Agroindustrial Union and carried out by the agroindustrial complexes and the other agricultural organizations.

The 1980 counterplan of the agroindustrial complexes and the other agricultural organizations shall be drafted as a single plan for the public and private farms with a view to ensuring additional agricultural output, including the self-sufficiency of the population in settlement systems, and create prerequisites for gradually reaching scientific norms of consumption of basic agricultural commodities on a per capita basis.

The state plan for purchasing meat from private plots and the plan for the marketing of wool, straw, and eggs produced within the system of the National Agroindustrial Union shall be transferred as of 1980 from the Central Cooperative Union to the National Agroindustrial Union. Meat purchases from the population will be based on the conditions applicable to the Central Cooperative Union.

Marketing-supply subunits or units set up on a self-financing basis shall be set up under the okrug agroindustrial unions, agroindustrial complexes, industrial-agrarian complexes, and other agricultural organizations. They shall be in charge of contracting, purchasing, and ensuring the overall servicing and supplying of animal husbandry of the private plots. Their obligations shall include, more specifically, supplying the public, private, and auxiliary farms with seeds, planting materials, fertilizers, chemicals, fodder, machinery, tools, spare parts, and others, related to their activities.

It is precisely such party and government measures that shall mark the beginning of the new stage in the application of the system for self-sufficiency of the population in settlement systems.

The new stage in the further improvement of the management of the system of the population self-sufficiency in basic agricultural commodities faces the managements of ministries, departments, people's councils, agricultural organizations, and enterprises with exceptionally responsible tasks related to increasing the production of bigger

quantities of agricultural commodities with a view to reaching planned consumption norms. The plan for the country's socioeconomic development in 1980 and 1981 stipulates that this year per capita consumption must reach the following levels: meat and meat products, 62 kilograms; milk and dairy products, 195 liters; eggs, 194; fish and fish products, 8 kilograms; fruits, 120 kilograms; and vegetables, 110 kilograms.

These norms have been concretized by okrug and settlement systems and, in accordance with conditions, quantities to be supplied through commodity stocks and the share obtained through self-sufficiency have been defined. Currently the obshtinas are formulating their counter-plans for population self-sufficiency in 1980. The task is to draft the type of plans which would not only guarantee the stipulated norms but ensure the necessary conditions for the rhythmical year-round supply of the population within each settlement system.

The people's councils, agricultural organizations, and mass organization managements must focus their attention on establishing and making maximum use of the possibilities of the public, private, and auxiliary farms for increasing agricultural output to meet self-sufficiency requirements.

In this respect the basic reserves should be sought in the following directions:

- increasing the number of people engaged in the production of agricultural commodities for their own needs or for the market. To this effect the distribution to the population and the auxiliary farms of neglected land to be continued. At the same time, the okrug people's councils and obshtinas people's councils shall provide all the necessary conditions for the cultivation of such land.

Wherever the necessary conditions are available, enterprises, organizations, and establishments must set up, expand, and strengthen auxiliary farms.

No plan for the purchasing of meat or other commodities should be formulated for auxiliary farms. The entire output should be used to improve and reduce the cost of cafeteria food.

Meeting the population's requirements for some farm tools and small-size equipment is an important prerequisite in the utilization of the land. Most ordinary farm tools such as straight shovels, hoes, watering cans, pruning shears, axes, adzes, and others, are still unavailable in a number of settlements.

Assessing the importance of this matter, the Council of Ministers has resolved that the necessary materials, raw materials, and foreign

exchange shall be provided for the manufacturing and importation of small tools and has made it incumbent upon producing ministries to fulfill such production obligations.

The people's councils, agroindustrial complexes, and consumer cooperatives face major tasks related to the regular purchasing and proper grading of agricultural commodities. Farmers must be regularly issued fodder and promptly paid for purchased products. This becomes particularly important now, under the new conditions, when the agroindustrial complexes are assuming the task of purchasing livestock and poultry from the population. Their marketing-supply units must maintain the closest possible contacts with the producers and supply them with everything necessary for normal and effective output and ensure the prompt purchasing of fattened animals and poultry.

The new stage in the application of the self-sufficiency system face with exceptionally important tasks the okrug commissions managing the self-sufficiency system and the obshtina people's councils. They must head the formulation and adoption of the counterplans, ensuring effective control over the implementation of decisions and adopted programs and measures for the development of animal husbandry, truck gardening, apiculture, rabbit breeding, goat breeding, and so on. It is also very important, wherever conditions have changed, for programs to be updated and made consistent with the specific possibilities of settlement systems, enterprises, collectives, and population requirements.

Such are the tasks to be taken up now by the managements of ministries, departments, okrug and obshtina people's councils, and agricultural organizations, so that this very year agricultural production may be raised and population supplies improved.

The main thing is for everyone to understand the new formulation provided by Comrade Todor Zhivkov on the further advancement and development of the self-sufficiency system and its political, economic, and social significance.

More than at any other time, today the tasks in this area are directly related to the implementation of the party's policy of raising the population's living standard.

4003
CSO: 2200

BULGARIA

AGROINDUSTRIAL UNION ACCUSED OF BUREAUCRATIC INDIFFERENCE

Sofia RABOTNICHESKO DELO in Bulgarian 29 Feb 80 p 1

[Article by Hero of Socialist Labor Yosif Kolipatkov: "Let Us Restore the Strength of the Land!"]

[Text] It is said of the soil of the Belene Valley that it does not know its strength. This is true. For years on end we have raised here over 6,000 kilograms of sugar beets per decare and 1,000-1,200 kilograms of corn. Yet, today, with great efforts, we are averaging 4,000 kilograms of beets and 600-700 kilograms of corn. Yet, we are using far more fertilizers and herbicides. We have improved strains, and better equipment, and do our work on time and better.

What is hindering us, what is the obstacle? Once the Belene Valley was a swamp. It was regained from the Danube River with dikes and turned into farm land. As the water level in the river would rise ground waters would water the fields. Once the draining system was able to carry out its functions. However, the canals have been filtered. About 8,000 decares of the richest land in the valley remains flooded for long periods of time and is rarely used.

My production sector--the Dunav agroindustrial complex in Belene has about 30,000 decares in irrigated land. The irrigation system, built in the first years of the people's system, has aged. The canals have excessively cut up the fields. An even greater trouble is the fact that they are underground and that we are forced to extract the water with pumps. We use hoes to insure irrigation. Large numbers of tractors and men become involved. Labor productivity is low. The truth is that the areas we irrigate are small. We are unable to do better despite our best efforts and the cost is excessive!

Yet, everything seems proper in the reports submitted. We are concealing the truth, for we are asked mandatorily to report the fulfillment of the plan. Those who demand this are aware of the truth but shut their eyes, for demands are made upon them as well. . . . We cheat one

another to make life easier. At the end of the year, however, things become difficult as the yields are inadequate!

I have been accused of covering ditches, thus reducing the size of irrigated areas. We have covered and we shall continue to cover canals in which no water has flowed nor could flow as a result of design and construction errors. Unfortunately, many such canals may be found in other agroindustrial complexes in Pleven Okrug. Justifiably, we ask ourselves why retain them: For the sake of reporting the existence of wider irrigated areas and plan high yields? What is their use?

Something else: Such canals hinder us in farming the land. They take up arable land and are nurseries for weeds. They cause us double and triple losses.

Why are we afraid of covering dry canals and lose "irrigated" land which has never seen water. In a plant an unsuitable or morally obsolete machine is written off unhesitatingly. The same is done with agricultural equipment and with underproductive livestock. Yet, we are tolerating obsolete and unsuitable systems which can only cause us losses. On what grounds??

A "second step" of the Belene irrigation system is being mentioned-- raising water for the irrigation of the high areas, of the hills around the valley. Very well! Yet, how can we implement this decision when the problem of irrigating the valley has remained unresolved? What land would offer greater investment returns--the poor land of the elevations which no one knows how to irrigate or the rich land?

Both are in my production sector and I know better than anyone else what such land is yielding and it could yield. We could take from the valley double and triple what we are obtaining today. Let me say something else as well: funds are not always invested where returns are the highest. There have been frequent cases of such enthusiasms, followed by neglect.

Quite frequently and in many places we have raised the question of the reconstruction and modernization of the draining-irrigation system. We find understanding, sympathy, and promises but nothing is being done. It is high time for the National Agroindustrial Union to understand us.

Finally, allow me merely to add what is being said by the Belene mechanizers: If we are able to protect the land from the high ground waters, if we are able to supply water to the crops, our output would at least double. Real conditions and prerequisites exist for achieving this objective.

The situation of our neighbors is similar--of the agroindustrial complexes in Nikopol and Svishtov--which have a lot of land in the Belene

Valley. Fast and decisive measures must be taken to drain the swamps and create new and modern installations so that the waters of the big river may flow everywhere in the valley.

Grant us more freedom of action to display creativity and you will see what we can do, what could be produced by the Belene Valley, you will see the real strength of the land!

5003
CSO: 2200

UNIFORM AUTOMATED INFORMATION SYSTEM BEING INTRODUCED

Prague HOSPODARSKE NOVINY in Czech 8 Feb 80 p 4

[Article by Engineer Bohumil Mazel, Federal Ministry for Technological and Investment Development: "A New Uniform Automated Information System Now Being Introduced--Automation and Control of the Scientific-Technological Development"]

[Text] If we want to outline roughly the current situation as regards the introduction of the automated control system (ASR) in our national economy and simultaneously to define the effect of the application of computer technology, we can say that the point of gravity is gradually shifting from an area that includes economic control on the level of enterprises into an area of automated technological processes on the one hand, and on the other, of strategic control at the level of the highest sectors. All those levels of control have their specific place in the organization of the ASR and their specific problems, and require appropriate procedures.

The complex of problems connected with the introduction of the ASR on the highest level of our national economic control, in other words, on the level of the ministries, central organs with cross-sectional programs, and the government, has become the focus of concentrated attention, particularly because during the Seventh Five-Year Plan control must be based on an extensive data bank without which the computer technology cannot find practical application.

Concept of the Solution

The Federal Ministry for Technological and Investment Development tested in 1973-1978 potential applications of computer technology in management on selected partial tasks in the planning of the scientific-technological development and in the system of territorial data, and initial results placed the FMTIR [Federal Ministry for Technological and Investment Development] among those cross-sectional central organs where computer technology had become an indispensable tool of control.

On the basis of experimental computer-processed data systems and of the results achieved, it was possible to proceed with a detailed elaboration of

the comprehensively conceived role of the automated system for the control of the technological and investment development (ASR-TIR), in order to organize an interaction system interconnected essentially with all central organs. The concept of its solution is based on the premise that the irreplaceable role of the FMTIR in the organization, implementation and control of state scientific-technological policies is carried out by a category of determining processes that are hierarchically, objectively and chronologically arranged so as to facilitate the selection of the socially most advantageous solutions to problems encountered in scientific-technological development. The ASR-TIR applies such vital processes by means of designated information systems.

As concerns the focus of the ASR-TIR operations, the existing control system is respected and determined by the function of the FMTIR in the area of technological development and in the area of investment programs.

In the area of technological development it involves the following steps: draft of proposals for the state scientific-technological program and of principles guiding its implementation; elaboration of a uniform plan for scientific and technological development; implementation of the state program and of the tasks of technological development, supervision of their fulfillment, and control activities; licensing programs and technological assistance; introduction of the scientific-technological and economic data system for the purpose of raising the level of the scientific-technological base.

In the area of investment programs it involves the elaboration of the concept of the state investment program and of the state housing program; implementation of investment programs based on expert reports; elaboration of plans for construction projects; control of the implementation of those investment programs which are of immediate interest to the government of the CSSR; implementation of international cooperation.

The introduction of the ASR-TIR has been conceived in general in such a way as to encompass the entire scope of problems as well as the structure of organizational arrangements of the ministry. As concerns the timetable for operations that are subject to instruction valid state-wide for the introduction of the ASR, the entire organization of planning, programming and implementation is divided into two stages:

- The first stage (prior to 1980) concentrates on problems of the concept, preparations for planning and testing of partial subsystems, and on their gradual introduction into operation;

- The second stage (after 1980) involves internal and external integration with other systems of the highest control of our national economy, utilization of the data bank set-up of information, and a gradual introduction of the ASR-TIR in the function of a unified system.

Its objective is to enable the user formations, whether on the level of the ministries, or on the vertical level along the entire scientific-technological base, to use information for multiple purposes, without having to re-check, collect and store such data in centrally established data banks.

Characteristic Areas

In terms of the contents of principal areas on which the designated information system of the FMTIR has focused its attention, the following characteristics of the information system may be noted:

- Automated data processing for operations dealing with prognoses, long-range outlooks and program objectives from the point of view of the highest control;
- Automated data processing for the FMTIR as well as for the national ministries (Ministries of Construction and Technology of the CSR and of the SSR, respectively) with the objective to improve qualitatively the preparations and compilation of the plan for scientific-technological development, its control, specification, and modifications of its material part, including close interconnections with the plan for the implementation of the scientific-technological development, the plan for international scientific-technological cooperation, the plan for purchases of licenses, and for scientific-technological and economic information. At the same time, linkages must be established within the ASR-TIR, first of all, with sectors implementing the plan for national economic development, in other words, with state plans for basic and economic research (State Planning Commission, and the Czechoslovak Academy of Sciences), statistical reports (Federal Bureau of Statistics), plans for standardization, the area of inventions (Bureau for Standardization and Measures, Bureau of Inventions and Discoveries), and financial information (Federal Ministry of Finances, the Czechoslovak State Bank).
- Automated data processing for the preparation, compilation, control, specification and modifications of the plan for the implementation of the scientific-technological development on the highest level of control. Moreover, the project is linked with the plan for processing of summary indicators (State Planning Commission) and with the analysis of data on the scientific research base of the CSSR in enterprises, economic production units and in ministries. The information system is narrowly linked in this area with scientific-technological and economic data systems and banks, i.e., departmental records of technological and economic data in information centers.
- Automated systems of factographic information, i.e., designated sets of indicators denoting scientific-technological development abroad, and of economic configurations (macroeconomic indicators) for the evaluation of inter-departmental and inter-ministerial interrelations of the scientific-technological development in national economy.

In the ASR-TIR the above-mentioned areas are conceived as precisely defined sub-systems with their own internal structure of data systems in both their input and output. More than the contents of individual systems, formalization of such data in terms of their computer processing and of their economical storage in data banks is a moot question at present. It involves extensive sets of data in transition from quantization to an interaction data-bank system with the introduction of more advanced computer technology, i.e., technology of the 3.5 generation. The experience gained with the use of terminals in specific operations with selected data systems either of the type of a plan, or with scientific-technological and economic data has shown that formulated assignments of algorithms make it possible to progress in the nearest future to a substantially higher stage in the integration of such data.

Among the most important subsystems now in the process of introduction in the ASR-TIR is the processing of a uniform scientific-technological plan. On the basis of our experience gained during the Sixth Five-Year Plan we are preparing for publication, in cooperation with the State Planning Commission, "Uniform Processing Methods for the Plan of Technological Development During the Seventh Five-Year Plan." Blank forms have already been set for automated processing, and it is anticipated that the technological development plan will be processed by means of computer technology on every level of management.

In comparison with the preceding five-year plan, the proposal for methodological instructions respects additional requirements of a systemic character, with the objective to stress fully those aspects of automation that facilitate a replacement of routine manual work with far more accurate and comprehensive computers.

The coordination plan is the basic document in the process of planning for the entire research-development-production cycle for the next five-year period. Presumably, it will be processed for the full scope of tasks dating from the preceding five-year plan, and of new tasks to be introduced in 1981. As for the remaining tasks launched during the Seventh Five-Year Plan and therefore, not fully clarified at the beginning of that five-year plan, the coordination plan will be completed only to the necessary extent (main indicators of the task), and complemented no later than 6 months before beginning to solve that particular task.

Furthermore, the proposal for modifications of the coordination plan must be processed according to a different method than thus far. In that case, only those indicators where a change is proposed will be filled out on the blank form. The coordination plan for individual tasks of technological development must serve on every level of management as the initial basis for the processing of all necessary additional summaries, such as, for example, reviews of non-investment funds, reviews of implementation outputs, reviews of economic revenues.

In case of the methods of processing proper of the coordination plan, a method of transfer will be adopted in agreement with individual central organs. It is presumed that the ministries with appropriate preconditions will submit, in addition to blank forms, also magnetic discs with data concerning those tasks of the state plan for technological development that may develop as a by-product of their own automated processing of the plan.

The use of computers in that operation must be clearly evident, and moreover, in automated processing of annual operational plans during the five-year plan it must enable central organs to present only new tasks and changes in blank forms of the coordination plans, whereby additional work will be substantially reduced. From the above-mentioned processing method it follows that designated data bank will be actually organized during the planning stage of the scientific-technological development.

Data-bank processing for the control of the scientific-technological development on the level of the FMTIR is based on a model which will be gradually introduced so that individual sectors of management may use this planned information system for their internal needs as well as in an aggregated form graduated according to specific needs of the center.

Innovation of Products

In addition to the above-mentioned information system for the plan of scientific-technological development, technological economic data on innovations will constitute at the same time an important sector of the designated data bank in the FMTIR, whose organization is now under way. Because of the extensive volume of technological data, the application of appropriate computer technology in our production base is necessary for expert planning of the most advantageous selection of those innovations of society-wide importance that will be included in programs of the state and of the ministries for the Seventh Five-Year Plan. Therefore, following an agreement with the State Planning Commission and the two engineering ministries, we began to organize a uniform information system for innovations that will considerably advance the pre-planning stage.

On the basis of automatically processed data and information concerning innovations of products and processes of production (technologies), and their evaluation according to various technological economic standards, it will be possible to select them when needed to draft documentation for plans on every level of national economic management. Computer technology will not only facilitate their processing operations proper in the system of indicators derived from basic records of innovations, but particularly on the basis of optimization procedures it will make it possible to consider different variations of their solution, which under the existing conditions of data processing and in view of the extensive volume of such data may be now done in only very exceptional cases.

The plan for uniform tabulation of data on innovations, and of innovation programs has entered the initial stage of its introduction. The results of

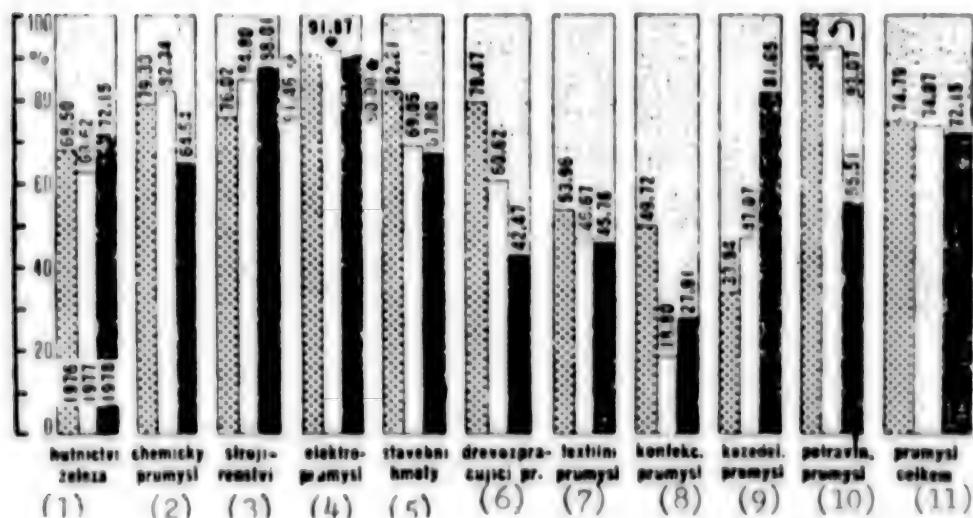
computer-processed data from selected branches, particularly metallurgy and engineering, will be known before the end of this year, and thus, the basic preconditions will be met for the utilization of the data bank of the system of information concerning innovations in planning processes proper and in control of the scientific-technological development. For that purpose, a system of analyses will be prepared; it will focus, above all, on the implementation of target tasks planned in innovation programs of economic production units and branches, on innovation tasks linking the plan for scientific-technological development with other sectors of the five-year plan, on the tasks of the program for innovation in the solution of the material and energy balance of our national economy, and on other key objective problems of the highest control of the technological development.

The above mentioned standard analyses will supplement the designated analyses which will facilitate the assessment of this information first of all in terms of cross-sectional technological-economic and economic reviews as regards correlations of implementation, completion, program, and other structures of selected graphic analyses expressing distinct developmental or cross-sectional trends, and verification of the system of supplier-consumer relations for the purpose of implementation of the plans for scientific-technological development.

Automation of this part of the planning process of scientific-technological development helps improve the process of control within the automated control system of the FMTR not only as regards the current stage of the national economic development, but especially as regards the application of new forms of management and efficient utilization of computer technology during the next five-year plan.

In conclusion, it will be correct to emphasize that the introduction of computers in automated control systems on the central level calls for specific approaches as well as for a close cooperation with the entire scientific research base. Automated processing of a uniform scientific and technological plan, and organization of a new uniform data system concerning innovation of products and processes in metallurgical and engineering production are important preconditions for raising the standard of control of the scientific-technological development on every level of management during the Seventh Five-Year Plan.

Table 1. The Share of Resolved Tasks in the State Plan for Scientific-Technological Development in Innovation of Production During the 1976-1978 Period (in percent)

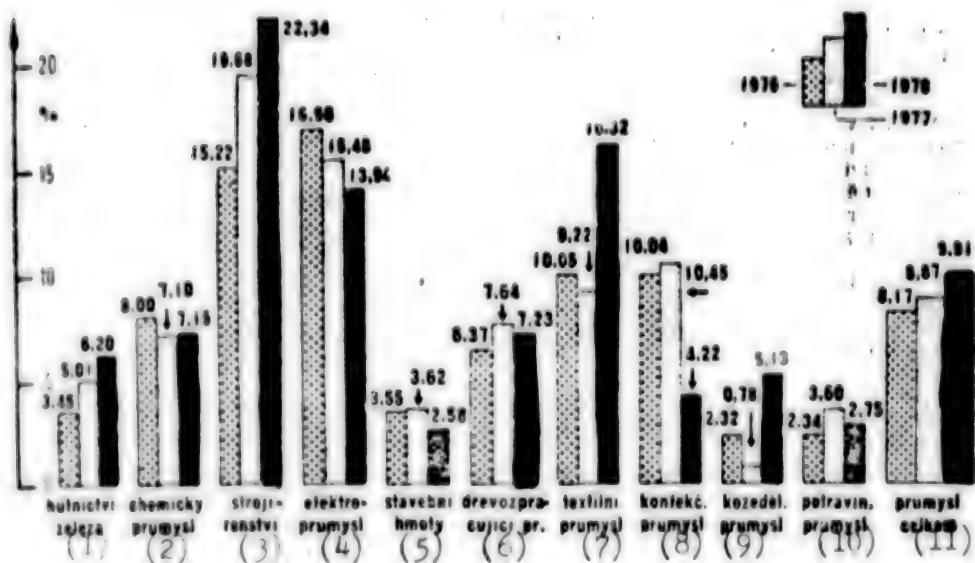


Key:

1. Ferrous metallurgy	7. Textile industry
2. Chemical industry	8. Garment industry
3. Engineering	9. Leather-working industry
4. Electrical industry	10. Food industry
5. Construction materials	11. Industry - total
6. Wood-processing industry	

Table 2. Innovation Programs According to Branches of Industry in the 1976-1978 Period

(Share of new products in the total volume of production of goods; in percent)



Key:

1. Ferrous metallurgy	7. Textile industry
2. Chemical industry	8. Garment industry
3. Engineering	9. Leather-working industry
4. Electrical industry	10. Food industry
5. Construction materials	11. Industry - total
6. Wood-processing industry	

9004

CSO: 2400

NUCLEAR POWER RESEARCH EMPLOYMENT AD PUBLISHED

Bratislava PRAVDA in Slovak 4 Feb 80 p 4

[Advertisement]

[Text] Nuclear Power Plants Research Institute, an organization directly managed by the Federal Ministry of Fuels and Power, announces a public competition for filling the following vacancies:

--three independent experts for research on thermal-hydraulic and stress problems pertaining to the stationary and nonstationary operating conditions and breakdowns of nuclear power plants.

Education: college, specialization in the installation of nuclear power generating equipment or nuclear power engineering.

Requirement: 6 years' practice in the field.

--three experts I [first class] for research on thermal-hydraulic and strength problems pertaining to the stationary and nonstationary operating conditions and breakdowns of nuclear power plants.

Education: college, and specialization in the installation of nuclear power generating equipment or nuclear power engineering.

Requirement: 3 years' practice in the field.

--one independent expert, specialist, for research on thermal-hydraulic and strength conditions and problems in stationary and nonstationary operating conditions and breakdowns of nuclear power plants.

Education: college with specialization in the installation of nuclear equipment or nuclear power engineering.

Requirement: 9 years' practice in the field.

--two experts, specialists, for research on neutron physical properties of nuclear reactors of VVER type with the emphasis on the utilization of nuclear fuel in the reactor.

Education: college with specialization in the installation of nuclear power generating equipment or nuclear power engineering.

Requirement: 9 years' practice in the field.

--two experts I for stationary calculations of neutron-physical properties of the active zone in the nuclear reactors.

Education: college with specialization in the installation of nuclear power generating equipment or nuclear power engineering.

Requirement: 3-6 years' practice in the field.

--two independent workers specialized in detectors and registration of radiation.

Education: college with specialization in nuclear power engineering or installation of nuclear power generating equipment.

Requirement: 6 years' practice in the field.

--one independent expert, specialist, for solution of research and development problems in the area of design of special equipment of instrumental nature. Practice in developmental design and construction of prototypes is welcome.

Education: college in the required field.

Requirement: 9 years' practice in the field.

--two independent experts or experts I for solution of research-development problems in the area of design of electronic circuits, measuring devices and processing of results of measurement. Programming experience welcome.

Education: college with specialization in electrical engineering.

Requirement: 3-6 years' practice in the field.

--two independent experts, specialists, for solution of research-development problems in the area of dependability of nuclear power generating equipment. Practice in the area of strength calculations in compression equipment welcome.

Education: college with specialization in technical disciplines.

Requirement: 9 years' practice in the field.

--two independent experts for solution of research-development problems in the area of dependability of nuclear power generating equipment. Practice in the area of statistical data processing and programming welcome.

Education: college with specialization in technical disciplines.

Requirement: 6 years' practice in the field.

--three independent experts, specialists, for the computer center.

Education: college--electronics, cybernetics.

Requirement: 9 years' practice in the field.

--two independent experts for the computer center.

Education: college--electronics, cybernetics.

Requirement: 6 years' practice in the field.

--two experts specialized in the design of automated control systems for the nuclear power plants.

Education: college--electronics, cybernetics.

Requirement: 3 years' practice in the field.

--two independent experts specialized in the programming of automated control systems for the nuclear power plants.

Education: college--electronics, cybernetics or VSE [College of Economics].

Requirement: 6 years' practice in the field.

--one independent worker I.

Education: college--mechanical, electric or nuclear power engineering.

Requirement: 6 years' practice in the field.

--two independent experts, specialists, for research on the potential application of computers to teaching aids, including experimental equipment, for instruction and training of nuclear power plants workers.

Education: college education of required specialization.

Requirement: 9 years' practice in the field.

--six independent experts for research and instruction in the following technical subjects:

nuclear physics and theory of nuclear reactors;

operation and maintenance of nuclear power plants;

dosimetry, nuclear chemistry and materials of the nuclear power plant; building of nuclear reactors and mechanical equipment of nuclear power plants, electrotechnical equipment, measuring and management of nuclear power plants, nuclear safety, ecology and economics of nuclear power plants operation.

Education: college education of required specialization.

Requirement: 3-6 years' practice in the field.

--two experts II [second class] for systems and programming work on computers.

Education: college education of required specialization.

Requirement: one year's practice in the field.

--two independent experts for research on the application of audiovisual technical aids in instruction and training of nuclear power plants workers.

Education: college education of required specialization.

Requirement: 6 years' practice in the field.

--one independent expert, specialist in solution of research-development problems arising in the preparation, control and implementation of proper maintenance of basic assets in the nuclear power plants.

Education: college--mechanical engineering technology.

Requirement: 9 years' practice in the field including 5 years in the power plant or allied area.

The salary scale applies in accordance with FMTIR [Federal Ministry of Technological and Investment Development] decree on the workers of centrally managed organizations of the research and development base. Possibility of accommodation for single workers and allocation of enterprise cooperative apartments for married workers.

Applications with a brief resumé and description of past practice should be sent within 3 weeks after the publication of this notice to the following address:

Nuclear Power Plants Research Institute
Department of Personnel
919 31 Jaslovske Bohunice

10501
CSO: 2400

CZECHOSLOVAKIA

BRIEFS

EYEGLASS SHORTAGE--A reader complains he will have to wait until September 1980 for delivery of his bifocal eyeglasses. Official sources confirmed existing shortage of bifocal and low diopter thoric lenses, and a current waiting period of up to 15 months for the consumers. Quoted were production problems concerning labor, existing machinery, subcontractors, etc., which are very serious and especially unpleasant for those who need eyeglasses. [Text] [Prague PRACE in Czech 5 Mar 80 p 5]

CSO: 2400

GERMAN DEMOCRATIC REPUBLIC

PLANNED 1980 FODDER-STORAGE CAPACITY DESCRIBED

East Berlin NEUES DEUTSCHLAND in German 18 Feb 80 p 2

[Article by Jochen Fischer: "Storage Facilities for Field Crops--Silo Construction Program a Youth Project--7.4 Million Cubic Meters of New Storage Space To Be Made Available in 1980"]

[Text] Just as every household keeps certain supplies in the cellar, larder or refrigerator, so every livestock raising enterprise needs fodder storage space for the winter. Silos have become the most important storage facilities for preserving green fodder. Therefore, a program was developed for building silos for agriculture. This year 7.4 million cubic meters storage capacity are to be built, more than twice the amount of a year ago.

Each year the GDR raises about 80 million tons of green mass on its fields including corn, various grasses and sugar beet tops, of which more than 40 percent are stored. To avoid storage losses 36 million cubic meters silo capacity are required. Even though storage capacity increases from year to year and agriculture already has a capacity for 19 million cubic meters, there is urgent need for more. Almost half the fodder is currently still being stored in makeshift storage facilities, which causes both quantitative and qualitative losses of fodder.

Calculations carried out by the Fodder Research Center at Paulinnaue, Nauen Kreis, indicate that if all LPG's and VEG's possessed adequate and appropriate silo storage capacity the available fodder storage supplies would increase by at least 10 percent. Naturally, all the other requirements on which high-grade fodder production depends would also have to be met such as, for example, intimate knowledge of chemical and biological processes taking place in the fodder mass. Therefore, Paulinnaue scientists have parallel with the silo construction program assumed responsibility for training silo managers.

All these measures create the prerequisites for utilizing the available fodder output to better effect and raising supplies by 4 million tons above the current level which is equivalent to a cultivation area of about 100,000 hectares.

Recently many LPG's and VEG's also pledged to raise the feed value per kilogram of dried fodder mass by at least 20 energy units, which will improve the livestock fodder supply situation. Raising fodder quality and adequate silo storage capacity reinforce mutually the resulting effect by assisting the effort of the collectives to improve the input-output ratio.

By assuming responsibility for the silo construction program the FDJ has met, as in the past, the challenge of an economically important project which was declared a youth project. FDJ members of the Schwerin Agricultural Combine, for example, intend to produce silo assembly parts and young workers at the Wriezen Concrete Works will assist them in an important production sector.

To the extent of its possibilities the VEB Agricultural Project Potsdam will also render assistance to the project; it has so far proposed seven variations for the construction of such installations which run from 2,000 to 10,000 cubic meters capacity depending on fodder consumption, distance from production sites and fodder cultivation area.

8664
CSO: 2300

CAPITALIST MONETARY CRISIS, EFFECT ON HUNGARIAN ECONOMY VIEWED

Budapest TARSADALMI SZEMLE in Hungarian No 2, Feb 80 pp 31-45

[Article by Janos Fekete, deputy president of the Hungarian National Bank: "Crisis of the Capitalist Monetary System and Hungarian Economic Policy"]

[Text] Because we have been pursuing an economic policy that takes realities into account, in relation to both the external economic environment and the domestic conditions, Hungary during its nearly 25-year development has been able to win a favorable international appraisal surpassing the modest size of its economy. This process found expression in the steps taken in the early 1960s, for example, in agriculture's large-scale reorganization, in the 1962 and 1966 party resolutions that announced the principles of the present system of economic management, and subsequently in the economic mechanism's comprehensive reform introduced in 1968, in setting many of the targets of the Fifth Five-Year Plan, in the October 1977 resolution that urged the formation of an economic structure corresponding to the changes in the external economic environment, and in a good many of the economic-policy measures adopted during the past 18 months. We may justifiably expect a continuation of all this from the 12th party congress to be held in March, and also from the Sixth Five-Year Plan that is to be finalized in 1980.

But it is also indisputable--as numerous analyses confirm this--that today conclusions regarding what economic policy Hungary should pursue must be drawn from an external economic world picture far more complicated, and interwoven more deeply also with the threads of economic and political conflicts, than what characterized the external conditions of our economic development even, say, five years ago. Accordingly, also the external effects on our economy are more complicated, and in many respects the conflicts that arise between a "traditional" economic policy and the requirements "corresponding to the new conditions" have intensified.

In a large proportion of the countries of the world the problems of economic growth have again risen to the forefront of attention, while inflation is growing, the balance-of-payments deficit is rising, open or masked protectionist measures are spreading and, partially as a result, foreign trade is expanding more slowly. These are closely interrelated and interacting factors that have become outgrowths of our time particularly during

the past five or six years. They are characteristic of the external economic environment in which also our country must develop, and from whose negative effects not even the socialist countries can exclude themselves, even though their conditions and possibilities are on the whole different.

The idea might be raised that these negative effects do not apply to us at all, or apply only to an insignificant extent, because we conduct most of our foreign trade with the socialist countries, and here the tensions of the capitalist world's economic and financial situation are not felt. Indeed, economic cooperation with the socialist countries has a stabilizing effect on our development. But even though they are delayed and damped, the trends and effects in the world market's capitalist sector gradually infiltrate also the CEMA countries' mutual economic relations. If we face this fact realistically and take it into consideration in our plans, then the difficulties threatening the national economy's external and internal equilibrium can be bridged.

Among the capitalist world's economic problems, international monetary problems unquestionably are the main issues of debate these days. This fact warrants that we devote due attention to this topic--in addition to a brief review of its antecedents--when we draw our economic-policy conclusions and set our specific tasks.

I. Collapse of the Bretton Woods System

When the Allies, led by the United States and the Soviet Union, began to develop in the last years of World War II the system of institutions for the postwar international economic order, they started out from the sad experience that accumulated after World War I (inflation, the 1929-1933 depression, fascism, and World War II). To avoid its recurrence, the Allies set as their objective the establishment of a system under which balanced economic growth could be ensured worldwide. They intended to create the prerequisites for this in three ways:

By establishing a new international monetary center, the International Monetary Fund (IMF), the task of which would be to enhance gradual liquidation of foreign-exchange restrictions, and orderly monetary cooperation among the countries of the world. In other words, by creating a system of institutions for the monetary prerequisites of economic development.

By establishing a World Bank (IBRD) that would aid postwar reconstruction through long-term credits, and would regroup in a suitable direction the capital necessary for the further development of the economies.

And finally, by establishing an international trade institution that would ensure the development of discrimination-free commodity trade between countries. In other words, by creating a comprehensive foreign-trade system of economic development.

In accordance with the first two objectives, 45 founding countries--including the Soviet Union, Poland, Czechoslovakia, and Yugoslavia--established,

at the Bretton Woods (USA) Conference in July 1944, the International Monetary Fund, and the World Bank. An institution for the third objective was not established, and the place of the proposed international trade organization was eventually filled by the General Agreement on Tariffs and Trade (GATT).

The general monetary-policy objectives "institutionalized" in the International Monetary Fund, and the methods of attaining them, were correctly formulated at the founding conference, and also the methods by which attainment of the general objectives would be ensured could be regarded as realistic.

The reorganized international monetary system rested on three pillars:

- a. Gold as a measure of value and the medium of final settlements;
- b. The United States dollar that for foreign central banks could be converted into gold, and which thus became the monetary system's key foreign currency;
- c. A system of fixed exchange rates by which the value of all currencies was pegged to gold, respectively to the dollar.

However, this system harbored the danger that the United States as the largest member nation of the International Monetary Fund might arbitrarily exploit the Fund to its advantage. This danger, which eventually became concrete reality, stemmed from the following three factors:

First, the economic and financial potential of the United States, as the chief profiteer of World War II, increased enormously. For this reason the United States was able to assume a disproportionately large quota as compared with the other member nations;

Secondly, by virtue of its quota, the United States was the only country that alone could veto the decisions reached within the international monetary organizations;

Thirdly, under these conditions the dollar, the national currency of the United States, was able to attain the particularly favorable, privileged, status of the international monetary system's key reserve currency.

Due to these circumstances and to the well-known developments of the cold war, the Soviet Union did not ratify the Bretton Woods Agreement, and in the 1950's also Poland and Czechoslovakia withdrew from the International Monetary Fund. With this the planned equilibrium collapsed of the international monetary system created under United Nations auspices. In the organization that now numbers 139 nations, the weight of the socialist countries is so small that even today we can speak of merely a capitalist monetary system, or rather of its absence.

This system, customarily called the Bretton Woods system after the site of its founding conference, functioned satisfactorily during the first phase of its existence, for about 25 years, roughly until the end of the 1960s. It contributed toward ensuring the capitalist world economy's development without greater depressions. The ten most developed capitalist countries were able to maintain their annual rates of inflation close to an average of 2.5 to 3 percent.

Besides its positive features, this period had also an exceptionally negative characteristic that finally undermined the stability of the entire world economy. Because of the dollar's privileged position within this system, from 1950 to 1970 the United States was able to cover its balance-of-payments deficit, close to 50 billion dollars, by increasing its short-term foreign debts, practically by printing more dollars. Thereby the United States, as the issuer of world currency, placed its own interests above its obligations stemming from the dollar's role as the key international reserve currency. In this way the United States undermined the stability of not only its own currency, but that of the entire monetary system as well. As a result of the balance-of-payments deficit, huge amounts of dollars flowed out, the dollar shortage was replaced by a worldwide dollar glut, and thus the dollar gradually became overvalued. For American capital this new situation made low-cost capital penetration of foreign markets possible; from 1960 to 1970, for example, the American corporations' foreign investments increased from 32 to 78 billion dollars. From the increasing foreign investments, about 20 billion dollars of profit is being repatriated annually at present.

The Bretton Woods mechanism's arbitrary and increasingly open and crude exploitation by the United States encountered growing resistance on the part of the Allies. To curb the American policy of aggressive expansion, the Allies began to increasingly convert their dollars into gold at the Federal Reserve System. America's gold reserves were halved. Under these circumstances the monetary system became increasingly inconvenient, a straightjacket, for the United States. In this situation the United States mainly strived to destroy the system, mostly through arbitrary measures. In 1971, Nixon ended the dollar's convertibility into gold. And in the spring of 1973, also the system of fixed exchange rates was abandoned, and "floating" became the general practice. As a result of these developments, the Bretton Woods international monetary system collapsed.

Inflation and Foreign-Exchange Policy

The international monetary system's collapse had serious consequences for the entire world economy. One of the most important consequences was the start of a new type of inflationary process that became permanent. Until the early 1970s, only overspending by governments, public institutions, corporations and individuals triggered the capitalist inflationary trends, and the rate of inflation could be curbed through the traditional instruments of monetary policy; in the 1970s, however, there was the additional inflationary pressure resulting from the monetary system's collapse. The large-scale and uncontrollable increase of international liquidity, the

free flow of so-called hot money, of the many billions of dollars of speculative capital, and loss of confidence in paper currency were accompanied by accelerating price increases. Each year since 1973, the weighted rise of the capitalist world's consumer prices reached or exceeded 10 percent, and in some periods it even ranged between 12 and 15 percent.

In the 1960s, while the international monetary system still functioned relatively well, the average annual rise of international foreign-exchange reserves was not more than 7 percent, despite overspending in the United States. In the 1970s, when Nixon "sanctioned" cutting the umbilical cord between the dollar and gold, the average annual rise of foreign-exchange reserves accelerated to 22 percent. Foreign-exchange reserves rose from 33 billion dollars at the end of 1969, to 303 billion by the middle of 1979, and more than three-fourths of this increase arose in dollars. And the gross volume of the so-called Eurocurrency markets, which do not fall under foreign-exchange controls, increased tenfold during this period, to one trillion dollars.

It is not difficult to arrive at the conclusion that the monetary system's collapse and inflation's acceleration were closely interrelated. In addition, the petroleum producers, and the oil monopolies acting as middlemen, raised petroleum prices by more than what was economically warranted, and this increased the petroleum consumers' production costs and thereby their consumer prices. However, it would be an exaggeration to contend that the higher energy prices caused the inflation, instead of merely "pouring oil on the flames." After all, their total effect on raising the price level can be estimated at most between 1.0 and 1.5 percent a year.

Under the conditions of accelerating inflation, the developed capitalist countries' monetary and exchange-rate policies gained in importance. After wrecking the international monetary system, the objective of United States exchange-rate policy was to attempt to regain, through the dollar's gradual and greater devaluation than what was warranted, those export markets that were lost prior to 1973 because of the dollar's overvaluation. But the undervalued dollar--while making it easier, at the expense of competitors, to sell American goods on foreign markets--increased the costs of United States import, whereby it became a further cause of rising American inflation. At the same time, the undervalued dollar set off uncontrolled speculation on foreign-exchange markets, thereby introducing a new element of uncertainty in international monetary relations.

In addition to such other factors as the increasingly bloated military budget, also American monetary policy is responsible for double-digit inflation in the United States, which contributed to the worldwide intensification of inflation. Former Treasury Secretary Blumenthal recently admitted: "We failed to fully recognize in due time what terrible the disturbances on the foreign-exchange markets could cause." And Federal Reserve Board member Wallich recently announced: "We now realize that a strong dollar can best serve our economy as well as the rest of the world." But this self-criticism by monetary leaders proved too late: inflationary psychosis has become so widespread in the capitalist world economy that its serious consequences cannot be remedied within a short time.

A new chairman was appointed to the Federal Reserve Board in October 1979, and he attempted to curb inflation by decisive measures. He introduced strict monetary restrictions to halt the dollar's further decline. By mid-November, the American domestic interest level (based on the so-called prime rate, the rate that commercial banks charge their best customers) was close to 16 percent.

The strongest capitalist partners of the United States--particularly the FRG, Japan, and Switzerland--took advantage of the American government's "indifferent" attitude to the dollar's decline and revalued their currencies upward relative to the dollar. By this policy they reduced the cost of their import of raw materials and particularly of oil, and thus were able to defend themselves against external inflationary pressure. Admittedly, this upward revaluation made export more difficult, but at the same time it exerted increasing pressure on exporters to maintain their ability to compete on international markets, by streamlining production and employing more-advanced technology. At the same time, the cheaper raw-material imports due to higher exchange rates, the more modest nominal wage increases due to low rates of inflation, and the low interest rates enabled the enterprises to maintain their ability to export. For this reason the competitors have always paid lip service to the United States government's policy aimed at strengthening the dollar; but in practice, when the administration in Washington has finally decided to defend the dollar's exchange rate, they are striving to neutralize through credit restrictions and higher interest rates the American measures' positive effect on the dollar's exchange rate. In this way a virtual interest-rate war has erupted between the United States and its allies, raising the costs of credit to an unprecedented level.

'Demonetization' of Gold

Amidst the capitalist monetary conditions that can be characterized by inflation, exchange-rate uncertainties, interest-rate war, balance-of-payments disequilibrium and increasingly tight credit, it is only natural that also gold has been cast in a new light. Many persons nevertheless divorce themselves from reality and unalterably speak of "dethroning" gold, of successfully excluding it from the monetary system, of its so-called demonetization. But has gold actually been demonetized?

Legally, it has been demonetized! The by-laws of the International Monetary Fund introduced in April 1978--this was its second modification--formally announced the yellow metal's demonetization: the special drawing rights (SDRs) were made the system's equivalent (the value of the SDRs is a basket of foreign currencies); member nations will not be able to peg their currencies to gold even if they eventually revert to the system of fixed exchange rates; a proportion of the Fund's quotas does not have to be paid in gold, etc. In practice, however, several obvious facts lead us to conclude that gold's significance has actually increased.

When confidence in paper currencies was shaken, gold reappeared. Since the "demonetization" of gold, its price has increased, and lately this

increase has been sharp, exceeding 700 dollars per ounce. (At the time of "demonetization," the official price of gold was 42 dollars per ounce.)

With the price of gold rising on such a scale, much greater emphasis was placed on the growing importance of gold, on the fact that no international currency or international claim could replace gold's role as a store of value. At a price of 700 dollars per ounce, the proportion of gold within monetary reserves--in the case of the developed capitalist countries--rose above 75 percent. (At the same time, the 2-percent proportion of SDRs within monetary reserves is proof of the SDRs' failure.) While the rise in the proportion of gold reserves is indisputable, their use and regrouping between individual countries are insignificant. Only 0.4 percent of the IMF member nations' gold reserves changes hands each month, at the monthly gold auctions. The regrouping of foreign-exchange reserves is frequent and occasionally represents a very significant volume, while changes in the ownership of gold proceed at a snail's pace. (Gold accounts for 90 percent of the monetary reserves in the United States, for 44 percent in the FRG, and for merely 30 percent in Japan, a country that was late in closing ranks. In traditionally pro-gold France and Switzerland, however, this proportion is around 70 percent.)

During crises, also in recent years, gold was the ultimate reserve. In this respect it will suffice if we refer to the Italian and Portuguese gold pledged as collateral for loans. Gold has its role and significance also within the European Monetary System.

From all this we tend to conclude that gold is increasingly gaining ground against paper currency, and that its rising price is causing further uncertainty on the already unstable capitalist foreign-exchange markets.

Balances of Payments, Credit Markets

A further expression of the new international monetary conditions that developed after 1973 is the chronic imbalance of the current accounts within the balances of payments.

In 1974-1979, as a combined result of the "petroleum surpluses" and other factors, balance-of-payments positions became strongly polarized. Although in these years--particularly in the case of individual countries--there were major or minor fluctuations, the most characteristic feature of the situation was that a few developed capitalist countries (for example, the FRG, Japan and Switzerland) and the OPEC countries accumulated during the past six years a combined total balance-of-payments surplus of 300 to 320 billion dollars, while growing balance-of-payments deficits were characteristic of the other countries of the world, practically without exception. The deficits intensified particularly in the case of the moderately developed capitalist countries and the non-petroleum-exporting developing countries. In recent years, deficits characterized also the CEMA countries' balances of payments with capitalist countries.

To enable the debtor nations to cover their balance-of-payments deficits, it became necessary to "recycle"--i.e., to channel back to them through credit and money-market operations--the balance-of-payments surpluses that developed in 1974-1979 and were concentrated in a few countries. The main channel for this recycling was the extensive international banking network of the developed capitalist countries, mostly through the so-called Euro-currency markets that up to now have not been placed under exchange controls. In other words, this recycling was accomplished primarily through market mechanisms, and not in an internationally organized manner.

Lately, however, this rapidly expanding foreign lending activity of the developed countries' commercial banks--made possible by adequate international liquidity, and necessary, by the large-scale imbalance of international payments--has been cause for growing concern. This concern is diverse, and it is closely linked to the complex nature of the processes of indebtedness. On this occasion it will suffice to cite three of its aspects:

First, a disproportionately large share of international capital has accumulated in countries whose capacity for investments and consumption is small. Therefore these amounts--instead of functioning as long-term investment capital, generating new employment opportunities and consumer demand--flow into short-term deposits, thereby adding to the instability of the international monetary situation. The rapid flow of this "hot" money has become a by no means negligible factor in the development of the series of monetary crises.

Secondly, the foreign bank loans' composition in terms of maturity--due to the aforementioned nature of the sources of credit--has resulted in large-scale mutual financial interdependence in the world economy. At the end of 1978, for example, the outstanding foreign loans of the developed capitalist countries' commercial banks totaled 285 billion dollars, of which 42 percent (!) or 119 billion dollars were short-term loans repayable in one year or less. From the debtors' point of view, such short-term loans constitute a continuously renewable obligation whose "mode of behavior" is the most sensitive to the fluctuations of the economic, political and market factors.

Thirdly, international organizations and central banks have of late been taking more and more insistently control of foreign lending by commercial banks, more-thorough evaluation of the credit risks, and the introduction of certain restrictions. Although in this respect we at present can speak for the most part only of efforts, ideas and debates on them, and of creating the statistical and organizational prerequisites, these efforts could soon become such concrete factors of the situation on the international credit markets that will slow down and hamper the present free flow of capital, and thereby the solution of the worsening imbalances of international payments.

Cyclic Effects

The negative effect of the above-outlined capitalist monetary conditions on the general economic situation is now unfolding. The prospects of the capitalist world economy--especially in the wake of the latest OPEC price increases--have worsened further in 1979. Earlier forecasts anticipated in

this respect that the approximately 80-billion-dollar additional bill of the increases in oil prices from 1978 to 1979 will reduce the developed capitalist countries' rates of economic growth by 0.5 percentage point in 1979, and by about 1.0 percentage point in 1980, despite the fact that in these countries the energy consumption per unit of incremental gross national product has dropped by about 5 to 6 percent since 1973. According to recent forecasts, however, there probably will be a further decline of the gross national product in the United States during the first half of 1980, due primarily to the decline in real purchasing power caused by accelerating inflation and the stagnation of employment, and to lower consumer spending. This in itself will have a negative effect on the growth outlooks of those capitalist countries where high interest rates and anti-inflationary policies will already act in the direction of slower rates of economic growth, and of the curtailment of consumption and investments. Several countries have already revised their earlier, more-optimistic forecasts.

All these signs indicate that a widening monetary crisis is unfolding; and although a monetary crisis is not identical with economic depression since the former affects a much narrower area, the possibility nevertheless exists that in the early 1980s the monetary crisis might trigger a severe economic depression.

II. Effects of World-Economic Changes on Hungarian Economy

The international monetary situation and its consequences affect also us. Hungary's system of economic management employs--instead of central planning directives in a breakdown by enterprises--economic regulators that can support the economic-policy objectives more flexibly. These regulators transmit also the changes in the external economic sphere, and hence the Hungarian system of economic management reacts more sensitively to the effects of the capitalist economy's situation.

It is common knowledge that from 1968 to 1973 the Hungarian economy met all the essential conditions of plan-conforming proportional development:

Our economy was able to maintain an average annual growth rate of about 6 percent, in such a way that the net national product (the total of new resources produced) and its domestic expenditure were in equilibrium, whether computed at current or unchanged prices;

Accordingly, also our external economic relations were characterized by balanced development; the balance of payments showed a surplus, and the national economy did not have to absorb large-scale price losses in foreign trade;

The requirement of domestic price stability also could be met, which provided a favorable foundation for our policy on the standard of living: the population's real consumption was able to expand at a rate higher than 5 percent a year, much faster than in 1960-1967.

We were able to achieve the favorable results of this period characterized by balanced yet dynamic growth--and this, too, must be recognized--also because the external conditions of our development, including the market conditions in capitalist countries, were likewise favorable. At the same time, however, the existence of fortunate external market conditions masked our domestic structural problems. For this reason the assumption then seemed justified that further development of the economy's structure--which otherwise was one of the principal objectives of the economic reform--could be achieved gradually, as a part of a long-term, balanced yet dynamic, development process.

The sharp rise in the world-market prices of oil and raw materials in 1973-1974, and subsequently the perpetuation of all the problems stemming from the capitalist world economy that were discussed above, suddenly exposed the weakness of the structure of our economy. These developments, together with Hungary's status as a net importer of raw materials, were jointly reflected in the fact that our terms of trade worsened significantly, by about 20 percent, in relation to the 1973 price levels. We had to export this much more, for the same volume of import. This worsening of the terms of trade occurred immediately in the case of trade cleared in convertible currencies. In the case of trade cleared in rubles, the worsening of the terms of trade did not occur suddenly, but the modification of the [CEMA] pricing principles means that also in this trade the capitalist world-market prices are gradually penetrating our economy. Foreign-price changes thus cause our economy losses so substantial that, after a time, they could be offset only from real savings, from productivity gains, from surpluses of national income. The economic regulators, too, must express this system of requirements.

Recognition of this situation and the intention to adapt were partially reflected already in the Fifth Five-Year Plan. This was expressed first of all in the change of emphasis on the following four elements of economic policy:

First, in the interest of restoring external equilibrium, domestic expenditure of national income may increase at a slower rate than the expansion of domestic resources, and this difference in rates must be reflected in the rise of the export surplus.

Secondly, in investment policy strong emphasis was placed on promoting export-oriented investments; for the MNB [Hungarian National Bank], the government approved a special credit quota to finance investments that have a short payback period and can ensure the output of products economically salable on any market;

Thirdly, we subordinated our policy on foreign borrowing to this credit policy on financing export-oriented investments;

Fourthly, bringing the domestic prices and price ratios gradually in line with the foreign prices and price ratios became an element more important than previously in attaining the economic objectives.

The October 1977 Central Committee resolution--based on nearly four years of experience with developing the economy--set the principal direction of our economic policy even more clearly when it specified: "The principal source of improving effectiveness in the coming period must be the production structure's change that meets both the domestic and the international conditions and satisfies the requirements of the foreign market . . . so that only effective developmental objectives may be realized, while activities that do not utilize resources economically will be curtailed or discontinued . . . It is particularly important to perfect the price system and the system of subsidies so that they will better enhance solution of our structural tasks." Furthermore, the 1978 and December 1979 Central Committee resolutions set as a principal line of our economic policy the requirement that the domestic conditions of economic development and the economic management system's set of conditions must be subordinated to attaining our equilibrium objectives.

During the past two years, then, our economic policy has been enriched with new insights and has also taken further concrete steps to solve our equilibrium problems. For three facts have become particularly obvious since the adoption of the Fifth Five-Year Plan. First, that five years earlier we underestimated the extent of the external factors and the magnitude of the negative effects upon the Hungarian economy that influence our development after all. Secondly, that the structural conditions were far more rigid than to allow fundamental changes in them within a few years. Thirdly, that in the solution of our problems stemming from the two preceding circumstances we can make faster progress only if we tackle more boldly the problems of perfecting the system of economic management.

Starting out from these external and internal factors, it was the "basic standpoint" of already the 1979 national economic plan that for income policy, budget policy and domestic credit policy it was necessary to create a system of domestic conditions under which production for economical export would become the principal vehicle of national economic growth. This approach and this monetary policy wished to provide the economically producing, export-oriented enterprises an opportunity for dynamic growth, while increasingly curtailing the growth opportunities of enterprises that produce uneconomically products that cannot be sold on every market. Of course, a temporary slowdown of the overall growth rate, perhaps even over a period of several years, is one of the consequences of this type of selectivity, but differentiated processes may unfold within this slower growth. This approach, with the increased application of financial instruments, is striving to force--at a faster rate than up to now--the structural changes essential to further economic development. Such selective change of the production structure increases the ability to export and simultaneously curtails the import demand, thereby improving both sides of the balance of trade.

One might ask whether a situation could arise such that export-oriented production activity excessively diverts allocations from the domestic market, thereby worsening supply within Hungary's domestic trade. Our economic policy and fiscal policy wish to avoid this danger--by influencing enterprise profits, so that sales to the domestic market are made as attractive as exports.

Likewise warranted is the question whether the results of an export-oriented investment and production policy can be realized during a period of recession, and whether it is possible to improve our balance of trade under these conditions. It appears that the processes which unfolded this year have already provided a partial answer in the affirmative. For experience indicates that the Hungarian economy, with its modest (approximately 0.6-percent) share of world trade, can expand its export by 400 to 500 million dollars a year (negligible on a world scale, but significant from Hungary's viewpoint), if specifically export-oriented investment objectives are combined with greater market diversification, suitable compliance with the "norms" of the new markets, and greater flexibility of the enterprises' marketing work. The export-oriented investments whose machinery import in 1976-1978 heavily burdened our balance of trade will yield 500 to 600 million dollars of additional export earnings in 1979, and between 800 and 900 million dollars in 1980. A proportion of these additional export earnings will thus be able to cover the dropout of uneconomical export due to selective expansion of production, and over and above this it will be able to ensure also the desired increase in export.

And finally, the question might also be warranted whether Hungarian economic policy has at its disposal a "system of indicators" on which effective decisions could be based, at the level of the national economy as well as at the enterprise level.

The truth is that the domestic price system in Hungary has become rigid because the economic and social interests associated with price stability have been asserted to a greater extent than what the economy's capability warrants. Since 1974, the policy on price subsidies and price policy have become more complicated, despite the fact that in recent years--as the already mentioned element of the Fifth Five-Year Plan--both the producer-price level and the consumer-price level have increased by 3 to 5 percent a year, partially through central price measures and partially as the effect of the price mechanism. But since the rate of the international-price level's rise exceeds this rate, in the final outcome the Hungarian price corrections proved inadequate when measured with the yardstick of the foreign markets.

The measures introduced to perfect the price system and exchange-rate system are intended to provide a "course correction." In this direction we took a giant step in July of last year, and a far more significant step affecting the entire price system, as of 1 January 1980. Our enterprises must know what will be the price of which product in the new situation; what will be worthwhile to develop; where it will be necessary and worthwhile to save more expensive energy and imported raw materials; what exports will be profitable and to which markets; and where it will be possible and economical to substitute domestic production for import. In sum, our price system and exchange-rate system must approximate the actual world-market prices and exchange rates, and even the world-market price levels; we need a price system and foreign-currency system more developed than up to now.

Furthermore, the rapidly rising foreign prices demand a new approach also because if we transmit them to the Hungarian economy at unchanged prices, or at prices rising at a much slower rate, then with time there will arise budgetary burdens under which spontaneous change of the foreign prices and gold prices will "decide" the volume of central resources available for plan-conforming allocation objectives, and the directions of their allocation.

In conjunction with perfecting the price system, we have to decide the place and role of exchange-rate policy in the further development of the entire system of economic management. Theoretically, exchange-rate policy may have three principal directions: the forint's devaluation, preservation of the forint's real value, and the forint's upward revaluation relative to foreign currencies. In other words, we may choose among three possible roads.

a. An exchange-rate policy expressed in the forint's devaluation may seemingly play a positive role in the case of a country that has a balance-of-payments deficit, for it will encourage the expansion of export. Actually, however, its effects are more negative than positive also in this respect. Such an exchange-rate policy increases the exporters' forint income and the general incentive to export, but the economic foundation of this export is not supported by higher productivity, improving production cost or better pricing. Occasionally the profit may become so excessive that it must be skimmed off through individual transfers to the state budget. Simultaneously, a direct consequence of such a foreign-exchange policy on the other side is an expanding "system" of import-price subsidies and consumer-price subsidies. But all such subsidies are so many subjective elements that haphazardly tie down central resources.

b. Preservation of the forint's real value--the solution that the decision favored--is able to counterbalance these negative effects. The economic effectiveness of export is maintained and may even increase. Obviously, our export must become more competitive. But this must be achieved in such a way that such efforts are in accord with the international regulations, and we must meet the obligations we assumed under GATT. Realistic possibilities for this do exist.

A certain subsidization of our agricultural export may be maintained, because every exporting country subsidizes its agricultural export in some form or other, due to the peculiarities of this branch.

The exporting enterprises may justifiably demand a refund of the budgetary transfers (taxes) on their exported output. Our Western competitors are doing the same thing. In other words, in the case of export it is justifiable to refund the taxes paid in the various phases of the production process.

The party resolution of October 1977 emphasized the need to transform the production structure. Increased application of advanced technology, rationalization of industrial production and farm production, efficient materials handling, saving labor, etc. are all capital-intensive objectives.

Obviously, the enterprises justifiably request subsidies when they transform their production structure and undertake investments for this purpose, and eventually during the startup of new production. We must provide such subsidies for every enterprise concerned, and hence also for the exporting enterprises, over a specified period of time, but at an annually declining rate.

Both directions of foreign-exchange policy--the one aiming for the forint's devaluation; and the other, for preserving the forint's real value--involve the awarding or refunding of state monetary resources. In the first case, however, budgetary expenditures for this purpose are not really directed by the central government's will, rather anyone--foreigners as well as Hungarian nationals--may claim these amounts. (Whatever is subsidized is distributed in such a way that the subsidy cannot be traced; as examples we may cite the subsidized prices of consumer goods.) But in the other case the state makes financial sacrifices in a plan-conforming manner, in a purposeful economic-policy decision, in the interest of attaining the desired direction of economic development.

c. The third foreign-exchange policy alternative, that of increasing the forint's real value--in other words, its upward revaluation relative to foreign currencies--can come into consideration only when structural transformation produces its anticipated and desirable results, through productivity gains.

III. Hungarian Economic Policy and Foreign-Exchange Policy

We expect that our present decisions will enable us to restore within a few years the equilibrium of our economy. This is an urgent and not easy task. In our economic policy and fiscal policy we may choose, theoretically, between two principal directions. According to the first variant, we can attain equilibrium gradually, parallel with our increasing participation in the international division of labor. The other variant would be to strive for autarchy, i.e., for reducing our dependence on foreign markets. But the latter variant exists only in theory. At the given size, conditions and structure of our economy, an economic policy aiming for self-sufficiency would very soon become an obstacle to development. The only principal direction that we can pursue, then, is to increase purposefully and in a plan-conforming manner our participation in the international division of labor, expanding our economic and financial relations with every sector of the world economy. The most important vehicle of this system of economic-policy and fiscal policy objectives is investment policy that must aim more purposefully for the expansion of export capacities: based on the price system's perfection, for the production of so-called convertible export allocations (i.e., new and economically produced products that can be exported to any market), if necessary through the importation of advanced technology, machinery, and plants under turnkey construction. It is permissible and sensible to use intermediate- and long-term foreign loans for this purpose.

Under this policy it is important to emphasize that when we speak of convertible export allocations, this means not the destination of exports, rather the quality of the export commodities. Also on the CEMA markets, the demand for goods of better quality is rising inexorably. Thus we must produce products for which we may justifiably demand goods of like quality of the CEMA markets. There is every reason to use the output of better-quality goods primarily for the expansion of our trade with the neighboring socialist countries that buy in large series, and which is more advantageous for us also from the viewpoint of transportation costs. In other words, with the market that--in the case of dynamic commodity shipments of improving quality, capable of mutually satisfying the quality specifications--is also the primary external factor of our economic growth. There is no particular need to substantiate the significance of this in a period of capitalist recession.

Parallel with export-oriented economic development, of course, we must neither underestimate nor relegate to the background the investments for import substitution, if such investments make possible the economical substitution of import of substantial volume and value.

In our foreign-exchange policy and exchange-rate policy we must make a distinction between short-term and long-term objectives. In this respect we must regard as decisive in the short term the role that the forint exchange rates--more accurately, the commercial exchange rates--play in the formation of domestic prices. But in the long term--parallel and in agreement with the formation of the domestic price ratios--the realistic objectives include linking the foreign and domestic prices by establishing a uniform exchange rate. We have taken the first steps in this direction in 1979, by narrowing the differences between the presently employed noncommercial and commercial exchange rates. This could be followed by further similar steps, until we reach a uniform exchange rate, one of the prerequisites for external convertibility that is in accord with the socialist planned economy.

The next link in perfecting the system of economic regulation, I believe, will be to create, in agreement with the set objectives, all the prerequisites for a more advanced financial (monetary) system and to ensure the continuous practical functioning of such a system. In the coming period I regard as feasible and expedient three phases in developing a more advanced monetary system.

1. Continuation of the process of organically linking the foreign and domestic prices, through the "maintenance" of our price system.

2. Changeover to a uniform exchange rate, which would represent a fundamental qualitative change. Money can best perform its measure-of-value, medium-of-exchange and store-of-value functions when the exchange rates are the same in all international settlements, in regard to both commercial and noncommercial transactions. A uniform exchange rate is feasible only under a suitable price system and system of income withdrawal. If we wish

to proceed further in the direction of a uniform exchange rate, with time we will have to regroup further elements of society's net income (taxes, fees) from the producer prices to the sphere of sales. With a uniform exchange rate it will be more simple than at present to measure the outlays at the level of the national economy and at the enterprise level, the economic efficiency, and therefore economic decisions at every level of economic management will be faster and better substantiated.

3. Introduction of the forint's external convertibility will be feasible only after the establishment of a uniform exchange rate. Of course, the forint's external convertibility--on the basis of our socialist planned economy--will presuppose, as before, the central management of foreign-currency reserves, the monopoly of foreign exchange, and the monopoly of foreign trade. The convertible forint would be tangible proof of the Hungarian economy's stability and continued growth, and it would further enhance our international standing and credit rating. It would be feasible to economically attract foreign capital on convertible-forint accounts. In perfecting our foreign-exchange system I regard introduction of the forint's external convertibility a realistic objective that is compatible with the socialist planned economy; under it the system of import and export licensing would be retained, but for the so-called current payments (merchandise, freight, insurance, etc.) we would ensure the forint's convertibility, while for capital movements and the satisfaction of the population's needs we would maintain the foreign-exchange restrictions commensurate with, and dependent on the changes of, our foreign-exchange situation.

Link Between Hungarian and CEMA Foreign-Exchange Systems

As a CEMA country and a signatory of the Complex Program, Hungary is participating actively and responsibly in the realization of the Complex Program's foreign-exchange policy objectives, in the CEMA Standing Committee for Foreign Exchange and Finance, and in the work within the boards of the International Bank of Economic Cooperation, and of the International Investment Bank.

The Complex Program's objectives include the realization of the national currencies' uniform exchange rate. Thus the Hungarian foreign-exchange policy ideas regarding the establishment of a uniform exchange rate are in accord with the objectives mutually agreed upon in the Complex Program, Part I, Chapter 7 ("Perfection of Foreign-Exchange and Financial Relations"). Pursuant to the Complex Program, Part I, Chapter 7, Article 16, the CEMA countries are studying the feasibility of introducing a uniform exchange rate for each member nation's national currency, and are working on creating the prerequisites for its introduction. Introduction of uniform exchange rates for the national currencies, and the time of their introduction will be decided later. Article 31 in this same chapter states: "The CEMA countries are studying the feasibility of changing over in the distant future--depending on the extent to which the existing significant differences between the consumer- and producer-price levels and ratios will have been eliminated--to the clearing of all mutual payments at the uniform exchange rate of each country's currency."

CEMA's present monetary system is based on the transferable ruble as the joint currency introduced as of 1 January 1964, and which is issued by the International Bank of Economic Cooperation, founded the same time. With the transferable ruble's introduction we have created a stable, socialist unit of account that is based on the gold standard, one that should perform all the functions of the key currency within the socialist bloc. In trade within the framework of the barter agreements--to the extent of the obligatory quotas and of the bilaterally balanced turnover--the transferable ruble does perform certain functions of the key currency.

The situation is different if during the year some country undertakes shipments in excess of the plan and for which it cannot obtain a suitable offset from its partner, or if some country is unable to fulfill the planned shipments, for unforeseeable reasons. In this case the creditor country cannot automatically use its credit balance for purchases from a third CEMA country. Based on long years of experience, however, such a credit balance is only a small proportion (2 to 3 percent) of the total turnover.

Thus the bilateral approach to foreign trade conflicts with the financial system's more-advanced--multilateral--clearing system. In mutual trade between CEMA countries this situation does not permit the development of the optimal foreign-trade turnover that is the most advantageous for every member nation, because in bilateral relations--as everywhere in the world--the turnover is always limited by the capabilities of the country able to provide the economically smaller performance (export). This is why it appears that it is also in the interest of the CEMA countries to accelerate the perfection of their foreign-exchange and financial relations, in accordance with the objectives outlined in Chapter 7 of the Complex Program.

About the International Monetary System

To achieve the conditions of economic growth within the framework of a functioning international monetary system, several prerequisites must be created. In my opinion, these prerequisites are particularly the following:

1. Based on the joint decision of the interested governments, an international measure of value, a world currency must be created that can become the monetary system's key currency. Developments during the past decades confirm that national currencies are unsuitable for this role, because the nations that issue them always place their own selfish interests above their international obligations.
2. The "gold question" must be settled: gold as a measure of value must be "rehabilitated." In other words, it must be recognized that gold de facto cannot be banned from the monetary system. It is entirely unrealistic to expect that central banks will be willing to terminate the monetary role of their gold stocks that account for 75 percent of their reserves.
3. Realistic parities must be established between the convertible currencies and the new world currency. On this basis it would be feasible to

revert to a system of fixed exchange rates, more flexible than the previous one, abandoning the present practice of floating that is harmful in so many respects.

4. The international monetary system's universality must be ensured by asserting the economic and political realities of the world. However, such a system cannot be realized all at once. Therefore we should first form regional monetary systems and zones. Such zones could be: (a) the dollar zone; (b) the Common Market; (c) the yen zone; (d) OPEC; (e) developing countries that are not petroleum exporters; and last but not least (f) CEMA. Relations could be established between the individual zones, and in this way we would gradually come to a universal monetary system.

Obviously, based on the Leninist principle of the different social systems' peaceful coexistence, it is also in the socialist countries' interest to replace the present monetary chaos with a new, orderly monetary situation. For the capitalist and the socialist world economy are not hermatically isolated; they interact and are even competing. In this external economic environment it is Hungary's and every socialist country's interest to formulate, severally as well as jointly, an economic policy, and to pursue an economic practice, that will best secure their interests in this worldwide competition.

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GOALS, TARGETS OF 1980 PLAN ASSESSED

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[Article by Jerzy Borowski]

[Text] A keynote of the plan for 1980 is the goal of ensuring an improvement in living conditions according to the standard of present possibilities and the stiff requirements of development of the economy. A careful and realistic appraisal of the possibilities of the growth of industrial and farm production in 1980, which represents the source of the growth of national income under the condition of the slower growth of costs, has given a basis for outlining the social tasks expressive of the continuity of the party line in the area of improvement of the quality of life. Ensuring the precedence of social goals, it was necessary in the plan to resolve many complex questions connected with alleviating the growing disproportions in the internal market and in foreign trade, in industrial production, farming and the construction industry. Without the liquidation of these disproportions, especially in energy and transport, activating the major driving force of the growth of national income at present, i.e., improved labor productivity and management efficiency, would be very difficult.

Taking into consideration both external and internal requirements, the essence of the plan for 1980 does not differ significantly from the plan for 1979. In both these years we are deploying without the possibility of taking advantage of a growth in investments and of employment as a factor in the creation of the national income. We can also note that in both these years, unlike in previous years, we must deal with a decrease in capital outlays, which served as a difficult test for the economy, notwithstanding the severe consequences of the winter. The evaluation of the year 1979, given at a meeting of the Diet on 21 December, 1979, showed that the economy emerged from this test safe and sound. While it did not succeed completely in the execution of the economic tasks which had been proposed, a significant growth in industrial production, an important task, did occur. There was particularly a significant growth in industrial production for export and for the internal market, as well as the established fall in the share of investments in the national income. This enabled both the execution of major social tasks, i.e., the growth of real wages by two percent, and the construction of 320,000 new residences, as well as the full execution of the plan of export to capitalist countries. In the course of the execution of last year's tasks, the economic structure gained new skills in the resolution of problems under difficult conditions of the realization of the plan. These experiences were fully utilized in elaborating the plan for 1980 and in preparing the requirements for its realization.

Social Tasks

The will to make progress in improving the living standard of the people in 1980 is best expressed in the growth of the consumption fund by 2.5 percent, wholly as a result of the decrease in the share of investments in the national income to 17-18 percent. The increase in the consumption fund represents the material basis for the realization of all social tasks of the plan. These tasks in the area of work income, and consequently wages and income of the farm population, are closely connected with production tasks, as well as with the possibilities for improvement of market supply. They are not a goal in themselves, but a way to increase real income, the realization of which depends on the strengthening of market equilibrium. Both the disciplined formation of income, policy in the area of industrial production, investments, the food economy and foreign trade, and the formation of appropriate psycho-social attitudes regarding matters of consumption, the market, income and prices are contributing factors in these ventures.

The plan includes the growth of real income per inhabitant by 1-1.3 percent. This increase is partly the result of a growth in real wages by 1 percent, in increase in nominal farm income by virtue of the sale of state farm products by 7.1 percent and in monetary social services of the state by 16 percent. The policy in the area of income will lead to a more disciplined and just setup. This will be expressed in the close observation of the established upper limits of disbursements from the wage fund and of other non-wage income, as well as in the maintenance of planned relations between the growth of production and productivity and the increase in wages. It is also manifested in the planned increase of the lowest wages in 1980 and in the prevention of excessive income, not justified in work input, with the help of a tax policy.

The plan anticipates the undertaking of further energetic attempts to improve the market situation. As in former years, the growth of the production of articles of consumption (515 percent) will significantly overtake the growth rate of all of industrial production (3-4.2 percent). The growth in supply of articles for the market as a whole by 5.2 percent, resulting from the growth of food supply by 4.9 percent and of non-food articles by 5.4 percent is, of course, not sufficient for liquidating all market shortages. Not only current income affects the growth rate of demand, but also so-called deferred demand resulting from the tendency of a more rapid growth of income than of market supply which prevailed for the whole decade. The growth of prices of industrial articles, attractive due to their market scarcity, leading purchasers to definite consumer behavior, also had its effect on purchasing motives of recent years: making quick decisions about a purchase with reference to real financial possibilities, buying for reserve, and the like.

In the food market it is anticipated that with the stabilization of the supply of meat will follow the essential increase in supply of many other

food articles (thanks to the better utilization of farm raw materials and an increase in the level of their processing) and an improvement in their quality.

Among industrial goods the highest rate of growth in supply has been shown by goods of the construction materials industry (15.4 percent), the whiteware and glass industry (11.1 percent), the chemical industry (6.9 percent) and the electro-engineering industry (6 percent). As a result of ventures in small-scale production undertaken in 1979, in 1980 we may expect improvements in supply from this industry, which produces products that represent the "1,001 odds and ends" that people are always trying to find. The government has announced that efficient and energetic attempts are being made to adapt production to the needs of consumers, to improve the quality of goods and to intensify price controls determined in a decentralized manner.

The Development of the Housing Construction Industry. This year the continued development of the housing construction industry is taking place. This is evident in the construction of at least 340,000 dwellings. In 1980 we will build approximately 620 square meters of living space per 1,000 inhabitants, while in 1970 we built half as much. Maintaining this level of construction necessitates the appropriation, in conjunction with the municipal economy, of approximately 31.6 percent of the general capital expenditures. In the course of discussion during the Diet upon the proposal of the plan, the following points, viewed as the major problems to be resolved in the course of realizing the tasks of the housing construction industry this year, were emphasized: the necessity of improving the quality of housing construction; the acceleration of construction of attendant structures; and counteracting cost increases.

The Development of Learning, Education, Culture and Safeguarding of Health. Despite the limited growth rate of the national income, considerably greater financial and material means than in 1979 were allotted in these areas, enabling the achievement of progress. In the area of education and training, the tasks of the plan are composed primarily of the creation of conditions for reforming the system of national education, for expanding pre-school care and for improving the adjustment of the framework for those being trained in post-elementary schools to the needs of the national economy. In higher education as improvement in the quality of education is taking place by virtue of the improved working conditions in advanced institutions and continued improvement in the structure of admission to study, based in part on the increase in the number of acceptances in agricultural areas.

An expression of concern for the state of health of the population is a further increase in expenditures for health and medical care. This has enabled an increase in hospital capacity by 13,000 beds, an increase in employment in health services and social care by more than 14,000 persons, as well as setting in order of the supply of medications, thanks to the

appropriation of 850 million foreign-currency zloty for the import of pharmaceuticals.

The Growth of Material Production

Our tasks in the area of material production were elaborated in such a way as to ensure the achievement of social goals and the strengthening of order and harmony in such a highly complex organism as is our economic potential. Above all, we will continue to transform the structure of industrial production in favor of the growth of production of articles of consumption and for export by maintaining maximum economy in the utilization of production resources and import and by essentially reducing production for investment purposes.

The value of salable industrial production should grow by 3-4.2 percent, with an 8.9 percent growth in production for export and a 5.5 percent growth in production for the market. The plan anticipates a decrease in production for investment purposes by 8.1 percent. At present the following are limiting factors in the possibilities of growth for industrial production: supplies of raw materials, materials and fuels as well as shortages in the supply of electrical energy in the face of our significant production potential, which is incompletely used because of these limitations. It is also for this reason that the plan projects a bi-directional effort at widening these "bottlenecks." There is, on one hand, the plan to step up the tempo of growth of raw material-energy production significantly with reference to the whole of industrial production and, on the other hand, a great emphasis on the conservation of fuels, raw materials and materials in the whole economy, representing the least costly method for increasing terminal production.

A significant increase in total farm production, i.e., by 5.8 percent, has been projected to ensure supplies of food at the planned levels. This increase is to be achieved almost wholly in the area of vegetable production, which, up to the present time, was the main limiting factor for the growth of animal production. In order to achieve this ambitious task which has great social and economic importance many efforts are being undertaken in the sphere of improved management of the land, altering the crop structure to produce grain and fodder and changing the structure of investment policy and production policy of industry supplying agriculture with the means of production. The plan includes an increase in the area for raising grain to 8.3 million hectares (by 5 percent), as a task prescribed by directive for voivodships, as well as an increase in the supplies of mineral fertilizers by 5.7 percent and machines and equipment by 3.1 percent. At the same time material incentives for farmers conserving pasture will be introduced and the procurement price of milk will be increased by 60 groszy per liter. A primary direction is the development of livestock production raised on one's own fodder, which cannot hide the fact that in order to maintain the present rate of livestock development in the current year we must import 6 million tons of grain and 1.5 million tons of high-protein fodder.

Funds for the Realization of Economic Tasks

Investment Policy. In 1980, the total quota of investments will reach approximately 600 billion zloty and will be less than in 1979. This places before the whole economy the task of the more rational and efficient use of these investments as a very basic tool for widening the so-called "bottlenecks" and hastening the growth of market and export production, both at a premium, and for improving management efficiency. It is in this way that, in spite of the general decrease in investments, certain strategic branches will be obtaining relatively larger shares of investment funds, e.g., hard-coal mining will receive an increase in these funds by 10 percent, energy by 10.6 percent and transportation by 4.8 percent. There will also be an increase in investments for housing construction. The investments for housing and investment cooperatives located within the management of voivodship offices (the preparation of an infrastructure under new hamlets) will increase by 18 percent.

Preference in the share of investment funds is also given to ministries directing the development of small-scale production. A reserve has been created in the plan in the sum of 2.5 billion zloty for the development of socialized small-scale industry. In the face of the essential limitations in investments there is concern over the further development of the socio-cultural sphere, which projects a growth in expenditures for social and cultural investments by 5.7 percent and, within this area, for health and social care by 6.9 percent.

Further structural changes in the area of industrial investments will follow on the basis of the concentration of funds for selected projects of particular importance to the economy, in preferred areas or in investments for modernizing purposes. Under conditions of a reduction of the general level of investments, there exists the necessity for a conscious and prudent slowing of the rate of realization of many investments, and even a temporary suspension of some of them. In addition to the rapid bringing into usage of supplies of machines and equipment, an urgent task is the further streamlining of the investment process and the strengthening of investment discipline.

Foreign Trade. Under present conditions, foreign trade, aside from its basic functions of supplying the economy and society with needed goods and improving the efficiency of utilizing production resources thanks to export production, like investments, fulfills the function of widening the "bottlenecks" in the area of supplying industry with fuel, raw materials and materials, co-produced elements and consumer goods. However, it can fulfill this function only under the condition of a rapid increase in export. This is essential for the prompt payment of credits, as a condition for increasing our share in international economic cooperation and in reaping its benefits as well as for the prompt supplying of necessary imported goods to our economy and society. The plan includes the considerable further development of our trade relations, in particular cooperation and

exchanges with the Soviet Union and with other countries of the community of socialist countries. It anticipates that our foreign trade turnover should grow in general by 9.1 percent, with export growing by 10.9 percent. A very important proposal is the aim to equalize trade turnover with capitalist countries this year, enabling an improvement in the balance of these transactions. As a result of this, industry has the responsibility to increase export production which is profitable and characterized by high quality, a task to be supported by additional powers and material incentives for production enterprises. In the practice of foreign trade, under conditions of universal conservation, the range of the rational and cautious coming to pass of import purchasing is growing.

Employment and Labor Productivity. The rationalization of employment, as the primary means for achieving production tasks under conditions of decreasing employment in industry, lies in the foreground of employment policy in 1980. We must be assured of the influx of highly qualified work crews into mining, energy, transport and farming, services and trade. Production tasks in the processing industry must be executed according to the growth in labor productivity, fostered by the further increase in the technical development of labor and improvements in the qualifications of the employed. Amid efforts for rationalizing employment policy, a continuation of the program for improving the structure of employment will have basic significance: transferring highly qualified work crews from old plants to those newly put in service; giving the first chance at jobs to workers with all the qualifications; improving the organization of labor by strengthening workers' discipline and limiting employment in the economic administration. The plan projects ventures leading to improved working conditions, including safety and work hygiene, as well as the rapid vocational assimilation of newly accepted workers.

Efficiency--A Prime Political-Economic Task

The conditions of economic development in recent years and projected for the near future discussed in the introduction of this article clearly show that improving management efficiency is at present the sole source of growth of the national income, as well as the foundation of social and economic progress in Poland.

The outline of the fundamental tasks and economic ratios of the plan for 1980 on the basis of planned progress in the area of management efficiency is justified by the identification and real evaluation of significant unused reserves in this area. It is enough to note that in the years 1976-1978, owing to the growth of labor productivity at an annual rate of 4.4 percent, the total increase in production in industry and construction was achieved. However, if we consider that the material conditions for the growth of labor productivity in the form of its technical fortification grew at a rate 2.3 times higher (10.2 percent), the assumption that labor productivity rose significantly faster is justified. Similar conclusions may be drawn

from an analysis of the use of work time. In the years 1975-1978 the number of non-work days (not including vacation time) per worker rose to 24.6 days, which means that every person employed in the national economy in 1978 did not work nearly a month, although he was entitled to income for this period. At the same time, the number of overtime hours per worker for the year rose to 82.

From 1976-1978 we did not achieve fundamental progress in the sphere of decreasing the use of energy and materials. While the individual usage of rolled products (cement, lumber, cellulose) did decrease, the individual usage of the most scarce products rose: coal, coke, electrical energy, synthetic rubber. The share of material costs in the value of total production in the socialized economy for the years 1975-1978 did not decrease, which means that we did not make use of the least expensive methods for increasing the national income and improving the standard of living. Improving the usage of fixed assets also has great possibilities if we consider that in spite of the stabilized level of investments, it rose from 1975-78 by 30 percent, and the national income rose by 15 percent. It follows that if for every 1 percent of growth of fixed assets for production, the national income grows by only 0.5 percent, reserves in the sphere of productivity of these assets continue to be very large. The plan for 1980 thus includes a significantly more energetic use than previously of the reserves discussed above in the sphere of the growth of labor productivity, conservation in the use of production resources, and the improved adaptation of the structure of production to needs.

In the national socioeconomic plan for 1980, for the first time concrete tasks, differentiated according to the specific nature of individual areas of the economy; have been laid out in the sphere of decreasing lost work time and limiting work in overtime hours. The plan provides that labor productivity in industry should increase by 4.4 percent and in construction by 6.5 percent as a result of improvements in the organization of labor and an increase in its technical apparatus. This is a completely realistic task, given the maintenance of a higher growth rate in recent years of the technical apparatus of labor in relation to the growth of productivity. In the plan much importance is attached to rationalizing the use of energy, fuels, raw materials and materials, especially where imported. Toward this end the verification of norms and normatives of usage will be put into practice, as well as definite concrete tasks in this area for all production facilities.

As a result of these measures, there should follow a general reduction of costs in industry by 0.4 percent, including a reduction in material costs of at least 1.2 percent, and a general reduction of costs in construction of 0.8 percent, including a reduction in material costs of 0.3 percent. As a result, the amount of cost reduction in the whole economy should reach approximately 25 billion zloty. This is a significant improvement over 1979, when, instead of a reduction, we incurred additional costs due to difficult conditions of management. The above-mentioned reserves are

treated as a minor task in the plan. The matter of accounting and lowering production costs must be very carefully analyzed in each production facility, at each work position where costs are incurred. Without systematic progress in this area, without monitoring costs, counteracting price increases of all articles, including articles of consumption, is impossible.

The logic of economic development is based in part on its continuity; periods of wavering and waiting things out delay developmental processes and endanger the economy. Thus in every period of the realization of socioeconomic tasks, we are mandated through prime party directives in the area of management, as regards efficiency, quality, conservation and the rational management of resources, and socio-vocational discipline. What this means in practice is the scrupulous realization of planned tasks in the sphere of production, investments and wages, the constant improvement of product quality, and complying with principles of economy in every activity. We must be conscious of the fact that a good part of our labor, excluding the influence of objective factors, results from subjective causes. This comes about particularly because in many fundamental units of our economy, as workers pursue easy results, tasks in the area of improving product quality, benefiting from experience, rewarding the growth of labor productivity, complying with individual norms for the use of raw materials and materials, and the growth of export production are not scrupulously and persistently realized. We must consequently be fully aware of two problems: first, apparently insignificant shortcomings in one work facility multiplied by the shortcomings of other facilities on the broad scale attain proportions painfully felt by all of society; second, these shortcomings are very often not undone without harmful consequences for the realization of other planned tasks and they do not end with the conclusion of the period of planning but are passed on to the next period, getting it off to a bad start.

An awareness of all these complex requirements for the realization of the present plan is an important political task for party organizations and channels. They should continue to improve their inspirational-organizational functions and their supervisory functions in work facilities, more effectively striving to enforce discipline in the realization of appointed tasks. The further improvement of planning and management of the national economy will promote improvement in management efficiency. We likewise anticipate the strengthening of the range of the plan and the discipline of its realization, which will favorably influence the harmonious and rhythmical development of socioeconomic processes, consistent with its proposals, and the growth of their efficiency.

IMPROVEMENT IN PLANNING AND MANAGEMENT DISCUSSED

Warsaw IDEOLOGIA I POLITYKA in Polish No 2, Feb 80 pp 47-53

[Article by Wladyslaw Baka]

[Text] The socio-economic strategy for the 1980's is taking shape under the direct influence of two tendencies. The first tendency is determined by the development of social needs; the second, by the increasingly limited nature of the elements of production with regard to demand. There is only one way to mesh these two objective tendencies, ie, through an increase in management efficiency, or the realization of greater and greater results for society from the available elements of production. Consequently, it becomes obvious why the subject of improving management efficiency finds its way into nearly every proposal contained in the Central Committee Guidelines for the 8th PZPR Congress.

The sumtotal of factors affecting management efficiency may be divided into three interrelated groups: 1) factors of a structural nature; 2) factors of a systemic nature; 3) socio-political factors. The basic task is to harmonize the development of the economy both in a macroeconomic sense and with regard to the smallest economic systems in order to ensure internal and external economic equilibrium. What is at stake is a balance in the market and in foreign trade, as well as in supply-production and in the area of investments. These are unusually important indicators of the growth of management efficiency. If supplies of energy and raw materials are not assured in the necessary amounts, how can we look for well-organized labor and the full use of production capacity and work time? As a rule, inadequate transport capabilities hamper the efficient supplying of both raw materials and finished products. Without the right synchronization of construction-assembly capacity with the investments program we cannot maintain the standard cycles for realizing our investments. If supplies of machines and equipment needed to modernize our production machinery are not assured, it is difficult to achieve any kind of growth in the modernization and improvement of the efficiency of our investments. Thus the general thesis, the harmonization of the development of the economy is in all ways an immeasurable important factor of outstanding management efficiency in our society.

The scope of this factor is especially important at the threshold of the 1980's. At the 16th Plenum of the Central Committee, Edward Gierek, emphasizing that "an increase in management efficiency will be a primary indicator of the achievement of social goals in the coming decade," pointed out that "our first priority toward this end should be the harmonization of the development of our economy, the concentration of our forces and means on the areas which are not keeping pace with the progress of other areas. This refers especially to transport and energy."

The second group of factors in the growth of management efficiency is connected with the question of perfecting the system of planning and administration. It is basic to party operations that streamlining the method of the operation of the economy is recognized not only as an important tool for improving efficiency, but also as an agent for forming socialist consciousness as well as a platform for continually increasing the share of working people in the direction of the economy and the state.

The Guidelines propose to continue the main line of formation of the operational method of the economy which was developed in the 1970's. This consists of the following: first, strengthening and perfecting the strategic functions of central planning; second, creating broad possibilities for developing initiative and the independent operation of economic organizations and local units; third, consistently bringing into use economic tools of effective direction, particularly the motivating principle which offers benefits to a firm which makes improvements in management efficiency. It has been determined that these directions for perfecting planning and management are realized in practice. Of course, the proposal to continue along previous lines does not mean the mechanical duplication of tasks undertaken in the past. We must continue with a system of planning and management which has been fully adapted to the new requirements of the development of the country for the 1980's as well as to the goals of socio-economic strategy. What this means primarily is a significantly stronger criterion; along the basic directions of the economic-financial system toward conserving production agents, particularly toward conserving raw materials, fuels and energy. We must also continue creatively, our moves based on former positive experiences in the process of transforming the system of directing the economy, taking into account all the difficulties and misadventures which stymied our efforts in the past.

The Guidelines include proposals of a general nature. This is indispensable for sketching out the whole picture of the problems and major directions in improving the operation of the economy. Their character as general directives requires them to be open-ended. They create a proper framework for social discussion, for the broad expression of opinions and suggestions, which, in the final analysis, will determine the program for perfecting the operation of the economy.

The Guidelines attach primary importance to the complex nature and coherence of the process of adjusting the economic mechanism to the

conditions and goals of socio-economic development in the coming decade. This is an extremely significant feature which has resulted from the critical analysis of our experiences. We must admit, that the fragmentary nature of our attempts to streamline the operation of the economy and the lack of a real connection between them were the basic causes of our setbacks and difficulties in this sphere in the second half of the 1970's.

The composite nature of the proposals contained in the Guidelines is manifested in the statement that we can render the economic mechanism more efficient only by taking a course which includes the parallel and interwoven improvement of the operation of the central organization, of economic organizations, local units and production plants, deriving from these sources effective tools for improving management efficiency. During the 1970's we concentrated our attention mainly on the great economic organizations, the organizations of the WOG [expansion unknown]. Both the central organs and units of direct production found themselves left out of the basic trend of improvement.

Great emphasis is placed on the necessity for strengthening discipline and responsibility for the realization of the plan. It is emphasized in the Guidelines that "a high level of discipline for the realization of the tasks of the plan is an essential condition for the harmonious fulfillment of social goals." It may be said that the use of planning, as a characteristic of the socialist structure, in the optimization of socio-economic processes is in great measure contingent on this. Discipline in realizing the plan is linked to increasing the significance of the plan in giving direction to the economy, as well as to limiting changes in the Guidelines of the plan to a bare minimum in the course of its realization. Against this background, a very comprehensive overview of the concept of the so-called open-endedness of plans is necessary.

A condition for strengthening discipline in the realization of the plan is raising the quality of its realization, particularly by thoroughly looking into developmental alternatives and by maintaining the proper proportions and interrelationships among various dimensions of the plan. It is for this reason that the Guidelines emphasize that "we must perfect our methods of accounting, developing a way of measuring socio-economic efficiency as a basis for selecting directions of developing the economy." This is in conjunction with the proposal for raising the level of central planning and for perfecting the work of the Planning Commission as a staff organ of the government which is responsible for executing the supervising the realization of plans, as well as a recommendation referring to "increasing the responsibility of ministries in the process of formulating and realizing socio-economic plans."

Tasks for improving the decision-making process at the central level and at other levels within the economy will be undertaken. In particular what is of the essence here is the synchronization of decision-making affecting

socio-economic development, as well as the improvement of the principles of cooperation of the central level with ministries and trade unions in order to ensure the primacy of the good of all of society over the good of individual ministries or regions.

The temporal horizon of economic activity will be extended through the broadening of the range of the 5-year plan as a fundamental tool for directing the economy.

Refining the organizational structure of industry and other areas of the economy is an important task. There is a statement in the Guidelines that "the great economic organizations must be strengthened, primarily in areas characterized by strong technological-production connections. In other areas, however, organizational structures should be characterized by more plastic ties between economic units--corresponding to their technical-economic value and the functions they fulfill in the process of serving society's needs." This is a basic thesis which has received strong positive and negative support as a result of experience. The tendency to overdo the universalization of the WOG [expansion unknown] organizational form, a phenomenon which occurred particularly in the first half of the 1970's, was the basis for the liquidation of local industry, the centralization of management in work cooperatives and the like. The 14th Plenum of the Central Committee initiated a new approach to the tasks of socializing small-scale industry as a permanent element of a mature socio-economic structure. There followed in its wake decisions changing the organization of this part of the economy. The Guidelines develop and generalize tasks for adapting organizational structures to technical-economic characteristics as well as to the functions and individual goals of economic systems. Realizing this directive will demand more precise directionality and greater intensity in scientific research in the area of organization and direction, as well as a fuller utilization of the results of such research in practice.

An important factor in improving organization and direction will be the reduction of the number of levels of management and the size of the administrative machinery. This is not an easy task. Reducing the number of supervisory personnel and transferring a group of administrative workers to areas of direct production and service as a rule meets with resistance. This task cannot be realized through resolutions and administrative directives alone. What is essential is the execution of a thorough analysis and the undertaking of multilateral efforts aimed at a judicious coordination of the social good with the aims and aspirations of collectives and individuals. In particular, we must create the possibility for acquisition of new skills and for suitable material and non-material incentives for achieving the rationalization of employment. The composite nature and the social ramifications of this task require that it be the subject of the interest and concern of socio-political and vocational organizations.

The increase in autonomy of economic organizations stated in the Guidelines is closely connected with a parallel increase in their accountability.

strengthening the principle of equal competence and responsibility both with reference to individual management levels and individual workers necessitates a more precise definition of their duties and tasks. The scope of directive indicators, as applicable to economic organizations, will be significantly limited. Thus, the excessive broadening of the scope of directive and "informational" indicators, which are often contradictory and ineffectual, must be avoided. On the other hand, what is essential is an unequivocal designation of a list of directive indicators which are essential for use at the present stage of planning the direction of economic organizations. At the same time, the role of economic tools and mechanisms will be broadened. This is contingent upon an improvement in the quality of normatives and parameters as well as of the whole economic-financial system. The standards of economic activity, in particular, must undergo further improvement. They must reflect, above all, an improvement in management efficiency.

Proposals relating to improvement of the economic-financial system are totally consistent. This is especially the case with regard to the connection of the economic mechanism of the activity of economic organizations with the improvement of the system of prices. Experience has shown that an insufficient synchronization of the principles of price creation and control with the bases of the operational system of firms leads to deformation in economic practice. In their eagerness to maximize salable and value added production (excluding material services), companies make use of various possibilities for asking higher prices for finished products and, as a result, under such conditions the mechanism of the system creates a trend of price increase instead of leading to a growth in efficiency. Thus, an essential indicator of the proper operation of the economic-financial system is a regular price structure as well as the correct principles of their creation and control. This is an extremely important direction of the improvement of the economic mechanism in our country.

Consistency in the process of improving operations is also reflected in the application of evaluative criteria to the goals of management and to the foundations of the economic-financial system. Preferential treatment of qualitative and efficiency determining criteria in the system of evaluating the activity of economic units is of tremendous importance in improving efficiency. The so-called gross categories, as, e.g., gross production, salable production or gross turnover cannot serve as the basis for evaluation. This would be contradictory, above all, with assumptions concerning the role of the conservation of raw materials and materials. The gross category should be exclusively of an informational-analytical character; on the other hand, the net categories, as, e.g., value added production, net production, profit and the like, which demonstrate both the dynamism and efficiency of economic activity, should serve as the basis for evaluation.

Production plants represent the next area to be improved within the economic mechanism of the economy. A weakness of many former systems lies in the insufficient implementation of links into production plants

building sites and directly to workers at their posts which could light the way for improving the operation of the economy. The many attempts at a mechanical transfer of the economic-financial categories and tools of central planning into the production sphere must be recognized as a misconception. What is needed is a broad transformation of the foundations of the system and their downward adjustment toward a formulation of adequate principles stating how much can be gained from the work force and individual workers by virtue of a conservative use of various materials, energy and fuel, improvement in quality and the like. A necessary condition here is "the systematic updating of the norms for utilizing materials and raw materials, supplies, work time and workers at their posts." We have some experience in this area, but our work is much delayed and lagging far behind. What is essential in the solution of this problem is reactivating the centers of standardization in ministries, unions and companies. What is needed above all is the creation of a favorable socio-political climate and the raising of the workers' consciousness to make them aware that the updating of norms is both in their interest and in the interest of the whole of society. This is not an easy task, especially in the case of the break-down of wage systems and principles which has occurred in several areas of the economy. It is for this reason as well that the updating of norms should be carried out in conjunction with improvements in the principles of the management of the wage fund, with a suitable application of a system of bonuses and rewards. Streamlining the normative base in work enterprises can be carried out in a proper manner only with the active participation of the work force, especially the workers' self-government organization and all socio-political and vocational organizations.

Improving the operation of the economy has a social aspect. This relates both to the phase of outlining directions and to the phase of realization. This means that large groups of people participate in the realization of this important function of the socialist society and also that the whole nation is interested in the results of the improvement of this function. What is at stake is an improvement in management efficiency, which directly affects the level at which the needs of society are served. It is thus essential that we create a socio-political climate and arouse the activism of society for a better and better operation of the economy. This is a very important task. It is all the more essential, because institutions and the social mechanism in the socialist structure are not free from a tendency to stagnation. The phenomena of formalization and the insufficiency of organizational systems are also not foreign to this system. Such phenomena hamper progress in methods of management.

All of these obstacles and barriers should be the subject of thorough analysis. As Comrade E. Gierek emphasized in December 1978 at the 13th Plenum of the PZPR Central Committee, they will be overcome successfully only through the constant ferment of creative and critical thought among the working class, through overcoming the criticism of the rank and file and developing a self-critical evaluation of one's own work, through a consistent improvement of the mechanism of the socialist democracy.

OFFICIAL OFFERS WAYS TO CONSERVE CONCENTRATED FEED

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[Article by Zdzislaw Grochowski, deputy director, Institute of Agricultural Economics]

[Text] In the Central Committee's Guidelines on agriculture for the 8th PZPR Congress, a great deal of attention has been devoted to feed economy. The increase in domestic feed resources and rationalization of their use is a primary task of agriculture and those sectors of economy which co-operate with it. The guidelines announce that the government will work out a comprehensive program for the development of feed economy aimed at self-sufficiency, decreasing grain imports, and bringing the import and export of agricultural foodstuffs into balance by 1985.

The importance attached in the guidelines to the improvement of feed economy results from the heretofore unfavorable situation; that is, the high import of grain and feeds (8.5 million tons in 1978), and a deficit in the balance of import and export of agricultural foodstuffs, which in 1978 amounted to 2.8 billion foreign exchange zlotys (import was 6.8 billion foreign exchange zlotys, including 3.2 billion for feed and grain, whereas export amounted to 4.0 billion foreign exchange zlotys). This is too great of an encumbrance for our national economy, especially because of the deficit in our foreign-trade balance and the increasing indebtedness of our country.

The basis for the development of agricultural production, including animal production, is an increase in the harvest yield of cultivated plants. Since demand for plant products shows but a slight growth (consumption of garden truck, fruit, sugar and vegetable oils is increasing, whereas that of grain and potatoes is decreasing), the use of vegetable products for seed remains almost at the same level (while, for example, that of fodder for horses shows a systematic drop), and almost the entire increase in the yield of vegetable products is being used as feed for pigs, cattle, poultry and sheep. This makes it possible to maintain for some length of time a somewhat faster rate of increase in animal production than in vegetable production.

An additional factor which affects the rate of increase in animal production is the import of grains and feeds. The heretofore growing import of grains and feeds caused the rate of increase of animal production to outstrip the rate of plant production. The reduction of this import in the next 5-year period will produce a reverse trend, and the rate of growth of animal production may be lower than that of plant production unless a radical improvement in feed economy occurs, as is intended by the government's program contained in the guidelines.

To understand the present state of feed economy in our agriculture and to draw conclusions concerning its improvement in the next 5-year period, let us review the course of developmental processes in agriculture in 1950-1978 from the viewpoint of relationships between increases in vegetable and animal production.

In 1950-1970, vegetable production was increasing by 2.5 percent and animal production by 2.7 percent annually. A somewhat higher rate of increase in animal production than in vegetable production was made possible among other things by grain imports which at that time increased from 0.3 to 2.1 million tons.

The first 5 years of the current [sic] 10-year period were characterized by a considerable acceleration in the rate of increase of vegetable production (3.6 percent annually) caused by both favorable climatic conditions and the increase in mineral fertilization which rose by 50 kg NPK per hectare of cropland (from 128 to 178 kg). This period was noted by systematically, never encountered either before or after, increases in grain harvests (from 16.3 to 23.0 million tons) which, with a simultaneous increase in grain imports (from 2.1 to 4.9 million tons), has made it possible to increase consumption of concentrates (exclusive of their use for horses) from 16.3 to 17.5 million tons. This permitted an increase of animal production by 6.7 percent annually. The average annual increase in animal production amounted to 338,000 tons; that is, was 4 times higher than in the previous 20-year period (86,000 tons). The increase in the production of meat alone during the 4 years (880,000 tons) was even somewhat higher than during the previous 20 years (864,000 tons). As a result, the consumption of meat per inhabitant during the 5 years (1971-1975) has increased by 17.3 kg; that is, more than during the previous 20 years (by 16.5 kg).

In 1975-1978, unfavorable climatic conditions were aggravated by a stagnation in mineral fertilization, which in the last year (190 kg) was even 1 kg per ha lower than the 3 years before, and in individual farms 7 kg lower. As a result, vegetable production not only did not increase, but even tended to drop. Especially severe was the drop in grain harvests which during 4 years on the average were by 2.5 million tons below that of 1974. To prevent a drop in production and consumption of animal products, the shortage of domestic feed reserves were supplemented by the import of grain and feeds, which in 1978 was by 3.6 million tons higher than in 1974.

The increase in domestic reserves of feeds depends primarily on the rate of the increase in crop yield, that is on the overall vegetable production. This rate also depends on the increase in mineral fertilization, pesticides, progress in soil improvement, and the introduction of new, more intensive varieties of cultivated plants. The average rate of increase in crop yield amounts in our conditions from 2 to 2.5 percent, depending chiefly on the rate of increase in mineral fertilization. Because of delays in implementation of fertilization programs and considerable limitation, compared to original assumptions, in the use of mineral fertilizers up to 1985 (230-250 kg NPK per ha of cropland), we should expect a rather low rate of increase in crop yield (no higher than 2 percent annually). With a simultaneous decrease in feed imports, the overall feed resources will increase less than 2 percent annually. If the effectiveness of feeding should not improve, animal production will also increase at the same rate, that is below 2 percent annually. And this rate would be considerably lower than the rate necessary to attain the level assumed by the 15th Plenum of the Central Committee for the consumption of animal products per inhabitant by 1990.

The essential factor that can assure a higher rate of increase in animal production in relation to the rate of increase in feed resources is improving the effectiveness of utilization of these resources. The comparison of the feed balance in Poland with other countries, carried out repeatedly by various authors, shows that with the feed resources available to us, we could obtain much higher animal production at present, provided our feed economy is considerably improved.

A characteristic feature in the development of animal production in the 1970s has been the change in the technique of feeding animals, viz., the increased use of grain and concentrates in feed rations and generalization of technique based on feeding them only with concentrates. The use of concentrates (without use of grain for horses) has increased from 10.3 million tons in 1970 to 19.8 million tons in 1978, that is by 92 percent; whereas animal production has increased during this period by 32 percent. The consumption of concentrates per kg per head of animal production increased from 2.19 to 3.24 kg, that is by 48 percent.

The increased use of concentrates per unit of animal production is a general regularity in the development of modern agriculture. But the shift to grain-consuming techniques of feeding animals is associated as a rule in European agriculture with the increased share of grain in the crop structure at the expense of less efficient fodder plants. In our agriculture, on the other hand, the increase of grain consumption in animal production remains in glaring disproportion to the tendency toward a decreasing share of grain in the crop structure. Thus, in 1978 the share of grain in the crop structure was 2.2 percent lower than the average in the 5-year period 1971-1975, chiefly as a result of the increase in the area occupied by socialized agriculture, in which the share of grain in the crop structure (43.0 percent) is 13.7 percent lower than in private farming (56.7 percent).

If the heretofore trend were to persist, then the grain crop area in 1985 would amount only to 7.5 million ha. With a planned crop yield of 30-32 q/ha, the total production of grain would be equal to 22.5-24 million tons; that is, even with a higher yield it would be barely a million tons higher than in 1974. How negative this would be on the grain balance of the country might be visualized from the fact that already in 1978 the consumption of concentrates (19.8 million tons) was 2.3 million tons higher than in 1974 (17.5 million tons). Therefore, one of the necessary conditions for improving the grain balance of the country and reducing grain imports is increasing the share of grain in the crop structure of socialized agriculture, especially in state agricultural farms, up to at least 69 percent. This would permit an increase in the grain crop area on a countrywide scale to about 8.5 million ha, and thereby also increase grain production by more than 3 million tons.

But even with increasing the grain-crop area to 8.5 million ha and with the yield in the amount of 25.5-27 million tons, the grain balance of the country will continue to be strained, which may be evidenced by the fact that in 1978 grain and concentrate resources amounted to 30 million tons (production 21.5 million tons, import 8.5 million tons). If, therefore, we wish to achieve an increase in animal production averaging more than 2 percent annually and decrease the import of grain and concentrates, we must reduce the current level of grain consumption by animal production. This is a feasible task, but it requires comprehensive action both at the center and at the level of agricultural enterprises and farms. This action should be aimed at increasing production and better utilizing nongrain fodder, on one hand, and on the other, at enhancing the effectiveness of concentrate use.

An increase in production of nongrain bulk fodder with the reduction of its cultivation area for the benefit of grain crops can be achieved only by the replacement of low-yield by high-yield plants; for example, by Indian corn and the "poly-past" variety of beets, which often yield twice the number of feed units compared to traditional forage plants.

However, because of the previously scant technical base for cultivation of corn and the impossibility of providing agriculture with the necessary machinery and equipment in a short time (this would require several tens of thousands of forage harvesters alone), the development of corn cultivation should at first encompass socialized agriculture and the larger peasant farms specialized in livestock production, whereas in the remaining individual private farms one should increase on a wider scale the cultivation of the "poly-past" beet variety, which is a good forage not only for cattle, but also for pigs (instead of potatoes).

The introduction of corn for silage radically changes and simplifies the whole system of farming and at the same time increases the productivity of soil and effectiveness of labor, as exemplified by many agricultural enterprises, both in some socialist countries and in Western European countries.

Another means of limiting consumption of concentrates per unit of animal production is by improving their quality or changing the existing assortment.

In industrial-type farms where a monodiet in the form of concentrates is being practiced, we are using 2.5-2.6 kg of feed per kg of live-weight increment of broilers and about 4 kg per kg of live-weight increment of butcher hogs (during fattening, that is exclusive of maintenance of sows and production of piglets). In similar farms abroad, the consumption of feeds per kg of live weight increment of broilers amounts to 1.8-1.9 kg and of butcher hogs 3-3.2 kg. Thus, our consumption of concentrates per unit of animal production is 30 to 40 percent higher. This difference is chiefly due to the quality of feeds produced and is a result of the use of inadequate-quality raw materials, want of all necessary mineral and pharmaceutical supplements, changeability of feed composition and its unsuitable make-up. It is caused by both the irregular deliveries, which necessitate the use of substitutes, and by the technical backwardness of a considerable part of our feed mixeries. Only a rigorous observance of concentrate production schedules can considerably reduce their consumption per unit of animal production in farms producing broilers and hogs. To be sure, an improvement in the activity of the entire feeds industry is needed.

Great possibilities for reducing the consumption of concentrates can be afforded by the technique of feeding hogs on private peasant farms. This technique is traditionally based on potatoes, although here, too, gradual changes are taking place; that is, the share of potatoes is decreasing and is increasingly supplemented by that of concentrates. All available evidence indicates that this trend will continue (as a natural and inevitable process), which does not mean, however, that the increase in consumption of concentrates should continue.

In 1978 the average outlay of feed per 100 kg increment in weight of hogs for slaughter (including reproduction of herd) on peasant farms was as follows: 700 kg of potatoes, 288 kg concentrates (including 149 kg grain and bran), 132 kg concentrated mixture, 7 kg Prowit concentrate, and some quantities of milk and green forage, which jointly amounted to 581 oat feed units and 50.5 kg protein; that is, 86 g of protein per oat feed unit. Concentration of protein in this dose is too low, which causes nonutilization of energy components contained in feeds, prolongation of the fattening process (and therefore poorer meat quality), and in the end also a higher protein consumption per production unit. Compared to the technique of feeding hogs applied in specialized farms investigated by the Institute of Agricultural Economics, consumption of feed units in average peasant farms is 26 percent higher and that of protein 8 percent higher. This difference shows how great feed savings may be achieved through rationalization of hog feeding on peasant farms. However, this depends not on farms, but first of all on the feed industry and in particular on adaptation of the composition of concentrated feeds being supplied to feeds actually available to farmers.

To insure the same consumption of oat units and protein per 100 kg of increment in hogs for slaughter, as on specialized farms, with unchanged amounts of milk and green forage being used and somewhat lower consumption of potatoes, it will be sufficient to use only 181 kg of concentrated feed (instead of 28 kg) but of a different composition, viz, 104 kg of grain and bran (instead of 149 kg) and 25 kg of concentrated mixture (instead of 132 kg), chiefly for feeding sows and piglets, and 52 kg of concentrate (instead of 7 kg).

If we take into account that peasant farms produce 1.7 million tons of hogs for slaughter (1978), then, in the aggregate, the consumption of grain would be by 2.5 million tons less, whereas that of concentrates would increase by 700,000 tons. Based on prices of grain, high-protein feeds and other components in the world market in 1978, the savings resulting from a change in feeding techniques would amount to 136 million dollars. These savings could be even higher if we would substitute to a still greater extent concentrates for grain.

Such changes in techniques of feeding hogs on peasant farms also requires a change in the structure of imported feeds and in the production profile of the feed industry, as well as extensive organizational work (professional counseling) to implement new techniques of feeding hogs.

As regards the change in profile of feeds being supplied to farmers two solutions are possible: the purchase of fully manufactured concentrates in the world market, or purchase of components and production of concentrates by domestic enterprises. The first solution is certainly easier, but it is also more expensive, for the price of concentrates is about 50 percent higher than the total of prices of the individual components. Not excluding, therefore, the possibility of a partial import of concentrates, especially in the immediate future, we should consider in the long run the purchase of components and production of concentrates at home.

The two versions presented above are aimed at improving the effectiveness of the feed industry, reduction of grain imports and balancing our foreign trade in agricultural products and foodstuffs, and at the same time they insure a further, albeit moderate, growth of animal production. This, however, requires a great investment and organizational effort, beginning with linkage of the importer of grain and feeds with the feeds industry, as well as basic changes in that industry, and ending with a shift of specialized agriculture and peasant farms to a different system of farming in regard to vegetable production and animal-feeding techniques.

WAYS TO INCREASE EFFICIENCY IN ECONOMIC SPHERE STUDIED

Bucharest REVISTA ECONOMICA in Romanian No 49, 7 Dec 79 pp 11-12

/Article by N. Savoiu, minister of finances/

/Text/ In the report he presented to the 12th party congress, Comrade Nicolae Ceausescu emphasized: "There is special importance for successfully carrying out the future five-year plan in the more and more judicious use of the objective economic laws with the goal of the sustained development of the entire national economy on healthy bases and rise in the quality and efficiency in all sectors of material production." In the following I would like to refer to the significance of such a forecast under the conditions where, in the stage of building the multilaterally developed socialist society, the objective economic laws are intensifying their action to reflect and determine the direction of the social-economic phenomena and processes while the interconnection from the system of economic laws becomes more and more intense.

Optimization of the Cause-Effect Relationship

It is clear that the road toward a developed economy is that of the continual improvement in the cause-effect relationship, between the development of production forces and the movement of costs per unit of product. This is a requirement of the general law of the saving of time which acts everywhere in the world. But for a country such as ours, which is proposing to double its volume of national income in a single decade, both through sustained annual growth rates for the social product as well as through the continued rise in the share of national income in the social product, the law of the saving of time imposes its requirements not only with the need of the first law of development but also with a much greater intensity than until now.

The provisions of the new five-year plan prove that our party, by knowing these requirements, is taking firm action in the direction of satisfying them. An examination of the evolution of the following indicators, resulting from the 12th party congress documents, could be selected as a departure point in giving examples of this truth (see table).

	1985/1980 (in %)
Fixed assets	150
Social product	133-137.5
National income	138-143
Per capita national income	135.6-137.4

The main support for this evolution consists of many basic plan provisions, among which we will refer here to the ones on increasing investment efforts on one hand and raising social labor productivity on the other. The 50-percent rise in the volume of fixed assets will be the result of a broad investment program for supplying the economy with labor resources with a high technical and quality level.

The congress established achieving an investment program of 1.3-1.35 trillion lei for the 1981-1985 period, which exceeds the one achieved for the entire 1951-1975 period in scope. At the same time, it approved a Program-Directive for scientific research and technological development and for introducing technical progress in the 1981-1990 period and the main direction until the year 2000, whose basic orientation, as results from the Report and Resolution of the Congress, is the total affirmation of the scientific-technical revolution in all areas of activity. Joining this aspect with the forecasts according to which more than 1,200 new capacities will be built in the 1981-1985 period and around 1,100 more industrial units will be modernized, we see that the structure of the 3 trillion lei of fixed assets which will exist at the end of the next five-year plan will be much improved in content from the viewpoint of technical performance. Such an investment program is correlated with the forecasts for modernization of the structure of production. Industry is to develop at an average annual rate of 8-9 percent, while within it the advanced processing branches will continue to see a priority growth (machine construction and the chemical industry), that is, those branches which are also the main bearers of technical progress. In the process of restructuring industry there will be a special acceleration in the development rate of those subbranches which are producing highly technical products and are low consumers of energy.

The efforts forecast for the future years in the development of production forges also concern the labor force. The employed population will grow from 10.4 million in 1980 to 11.4 million in 1985, the qualification of the labor force will be organized on a more solid basis; there will be generalization of the advanced training process for cadres (more than 2 million persons will be included in this action annually); the school population in 1985 will be around 27 percent; by 1990 12-year education will be generalized; by the end of 1985 more than 200,000 students will be attending various faculties (with the emphasis being placed on raising their number in the technical faculties); evening education will see greater growth in order to make it possible for the greatest possible number of working people who work directly in production to obtain a high qualification. Carrying out the education program will require more than 128 billion lei capital in the next five-year plan.

Clearly, faced with such great efforts for the development of the production forces, higher efforts also are needed and in the end assurance with material and financial resources for building the projects provided in the area of investments, production and rise in the standard of living depending on the results of economic activity.

A positive indicator of maximum synthesis in the area of effects is social labor productivity, which at the level of the national economy is expressed by the national income obtained per working person in the production sphere. Following the positive trends in the rising share of working population in the production sphere and due to some difficulties in calculation, the evolution of the social product and of national income per working person is presented below by making the sphere of occupation abstract.

	1985/1980 (in %)
Social product	125.5
National income	130.5

The increase in national income per working person in a greater proportion than the rise in social product is proof that the 12th party congress documents firmly place achievement of a greater growth in social labor productivity in the center of efforts for the next five-year plan. As we know, around 80 percent of the growth in national income is to be obtained on this base. In this area, the main efforts will continue to belong to industry, a branch where labor productivity, calculated on the basis of net production, must increase at an annual rate of 7-7.5 percent as well as to the construction-assembly branch, where the growth rate will be 5.4-6.2 percent annually.

Fulfilment of the tasks for raising social labor productivity requires a move to a new quality for all economic activity. In this regard there is particular significance for the next five-year plan's activity in the indication of Comrade Nicolae Ceausescu according to which the tasks for the quality aspects of the plan in particular should be considered minimum ones. Using the example of the tasks for the 1981-1985 period, this is required with greater need, at least from two viewpoints:

Optimization of the efforts-effects relationship to a greater extent continues to be an area toward which our economy must tend firmly with a view to over-coming the stage of a developing country and building the multilaterally developed socialist society;

Such an optimization must have in mind eliminating some lags which still are being demonstrated in economic activity to a greater extent.

Both aspects have in mind the fact that the state is continuing to make greater efforts to supply the labor force with qualitatively improved fixed assets and that the effects forecast to be obtained are at the level of these efforts. Despite the fact that the fixed assets which will go into operation in the last year of the five-year plan will have a lesser effect on the effects of the particular year and without ignoring some difficulties in increasing economic efficiency, connected with the start of the process of restructuring

industry and continuing to broaden the base of raw materials and energy, it is necessary to utilize any reserves which still exist in better organization of the production forces in order to bring the rise in national income per working person even closer to the increase in supplying the labor-force with fixed assets.

More Efficient Use of Fixed Assets

First, as has resulted from the congress' work, it is necessary for the investment projects to be prepared more solidly for building new fixed assets so that no job any longer begins under derogatory conditions but, rather, only on the basis of legally approved economic-technical documents. This will assure a better substantiation for the need, timeliness and efficiency of each new project. The practice until now has shown that, although the number of investment projects for which work begins under derogatory conditions is lower, there still is the tendency to delay working out the documents and to utilize capital approved for costly jobs of organizing the job-sites to the detriment of other projects approved under derogatory conditions and to request new schedules for submitting the documents over the ones approved, which delays fulfilling the investments and this affects their economic efficiency.

Second, it is necessary to continue improving the technical and quality level of equipment, installations, machine tools and so forth furnished by our machine construction industry, which become fixed assets in various branches of the national economy.

The 13th party congress gave special attention to solving the problem of the maintenance and repair of fixed assets under better conditions. If we keep in mind that the stock of machinery, equipment and installations supplied to the economic units is an immense national wealth which will continually increase in the future and we associate this with the shortcomings currently existing in the repair activity, particularly due to the lack of spare parts, we clearly see the need and correctness of the measures established by the congress, which basically concern improving the organization of repair activity in the units which carry them out, specific listing of the capital repair work through the annual plans, raising spare parts production 1.9 times in 1985 compared with 1980.

The rise in social labor efficiency at the levels established requires better organization of production and of work. The report places a special emphasis on the appropriate organizational measures which must be taken in all units to raise responsibility in carrying out a broad complex of measures which would permit more efficient use of the production forces and, in the end, greater social labor productivity (extending mechanization and automation, building completely automated lines in the sectors with heavy work, industrial robots and microprocessors, cybernetic control of technological processes, generalization of work for more than one machine, reasonable utilization of working time, use of electronic technology in production programming and other operations; raising worker qualification to the level of complexity of modern production; scientific standardization of labor and so forth).

These experts also suggest the idea of more decisive action to strengthen discipline in work, the factor upon which the degree of utilization of maximum available time, indicators of utilization of installations and fulfillment of quantitative and qualitative plan tasks most often depend. I would use as an example some aspects from the coal industry, an important sector with a great concentration of labor force, with special prospects for development in the next five-year plan but one in which lags are currently seen in fulfilling the physical plan tasks, localized in particular at the Oltenia Mining Combine. For the first semester of 1979, unutilized time at this combine rose by more than 19 percent compared with the corresponding period of the preceding year (unmotivated absences contributed most to this increase); in some units there is a great fluctuation of labor force: mechanized cutting and loading in mining were achieved only in the proportion of 82 percent compared with the plan task and so forth. The need to take more decisive action for the better organization of production and work in this sector is clear, particularly strengthening labor discipline with a view to achieving the substantial leap forecast in coal extraction, which is to exceed 85 million tons in 1985.

More Decisive Application of Measures To Improve the Economic-Financial Mechanism

Objective requirements require more precise application of the measures to improve the economic-financial mechanism established during this five-year plan. The importance and purpose of these measures lie in improving the activity in each economic unit with the goal of producing better, more cheaply and at a high technical and quality level, raising the national income.

For that reason, precise fulfillment of the tasks established by the congress like the ones shown up to here will contribute to operation of the new economic-financial mechanism under better conditions, since obtaining continually better financial results--the real support for strengthening economic-financial self-management--in the end depends on obtaining physical production and net production as high as possible. At the same time, the intent of the economic-financial mechanism is in influencing in the direction of obtaining such results as powerfully as possible.

One may not say that this requirement is being carried out fully, despite all the positive results obtained until now. In some economic units there should be a rise in responsibility for working out and fulfilling the plans, for raising labor productivity calculated on the basis of net production and for reducing material costs. There are enterprises (in the machine construction, extraction industry and other branches) which showed in working out the plan as well as during 1979 that they could not fit in with the large values in the tasks of reducing production costs but toward the end of the year it was found that they were obtaining much better results than they had forecast in their own programs for substantiating the reduction in costs.

Lags also are being found in the way their own resources are being formed to form the assets which are established according to the law at the disposal of

the economic units as a result of not achieving the profits planned. One of the causes also is the fact that the budget of incomes and expenses, which permits complex knowledge of each unit's financial situation, is not being followed up on for shorter periods and, as a result, the collective leadership organs in some economic units lack the only means which could show them the paths of action in time to achieve the incomes and fit-into the costs planned.

Application of the new economic-financial mechanism more firmly also requires intervention from the organs of the Ministry of Finances and the central banks and all banking-financial organs in the economy, which have the obligation to assure the good operation of the mechanism, and raise economic efficiency, profits and profitability. In my opinion, these organs' help is needed, primarily for correct application of the legal regulations adopted in applying the new mechanism by each enterprise in the economy and, second, for studying the phenomena and trends resulting from its application with a view to continuing to improve it in the cases where it is demanded by need.

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MEASURES, DIRECTIONS FOR INCREASE IN LABOR PRODUCTIVITY

Bucharest REVISTA ECONOMICA in Romanian No 49, 7 Dec 79 and No 51, 21 Dec 79

Article by Dr Petre Frujina: "The Raising of Labor Productivity—a Main Orientation of a New, Higher Quality"

7 December 1979, pp 19-20

Text The raising of labor productivity at high rates constitutes an essential condition for economic and social progress, for growth in material production and national income and, on this basis, for growth in the material and spiritual well-being of the whole populace—a central objective of the party's and state's policy of forging the multilaterally developed socialist society in our homeland.

As Comrade Nicolae Ceausescu pointed out in the report to the 12th RCP Congress, "A chief orientation of the next five-year period is faster growth in social productivity, through the scientific organisation of production and labor in all branches of the economy."

Decisive and persevering actions regarding the improvement of engineering and technologies, the renovation and modernisation of products, the scientific organisation of production and labor, the thorough training and the raising of the qualifications of personnel, the strengthening of discipline in work and the affirmation of the thrifty spirit in all production units, in the entire economy, are needed for steadily attaining the objective of more marked growth in labor productivity, an essential requirement for raising the standard of living of all working people, for putting Romania among the countries with an average level of economic development.

Stage and Results

A vast investment program meant especially to develop the industrial branches, to modernize them, to introduce the gains of science and technology on a wide scale, a sound basis for growth in labor productivity in all economic units, has been carried out within the framework of the policy of socialist industrialization of the country, especially after the 11th party congress.

Industrial facilities and production capacities with a high technical and technological level, with high outputs and productivities, have been put into operation. Steps have been taken to equip the existing enterprises with modern machinery and equipment, with measurement and control apparatus for scientifically running the production processes. The degree of technical equipping of labor has risen substantially.

The fixed assets and the degree of equipping of labor have experienced a continually rising evolution during the years of socialist construction.

The fact that nearly 70 percent of the total fixed assets that the national economy now possesses were put into operation in the past decade is indicative.

A balanced placement of the production forces throughout the country has been achieved, which has provided both for the economic and social growth of each county and for the growth of industrial production in the national economy as a whole, under the conditions of higher labor productivity.

In accordance with the well-founded policy of our party, the percentage of the decisive branches for the development of technical progress, a factor of maximum importance in attaining high levels of labor productivity throughout the economy, one which is reflected in the higher rates of growth of gross output in these branches, as compared with the average ones in industry as a whole, has increased:

Table: Average Annual Rate of Growth (%)

	1951-1965	1966-1975	1976-1980
Industry--total, including:	13.3	12.4	11.3
Ferrous metallurgy	13.4	11.9	14.7
Machine building and metal processing	18.7	16.9	13.0
Chemistry	22.5	18.5	17.0
Construction materials	15.4	11.5	12.5

A strong contingent of the working class, with a high degree of professional training, capable of applying with skill and devotion everything that science and technology have created for man and his needs in all fields of activity, has been formed as a result of the faster development of the means of production.

The development of material production on modern bases, the better utilization of the work force, and the better organization of production and labor have led to the obtaining of high rates of growth in labor productivity.

In the last 30 years, labor productivity has risen at an average rate of 3 percent per year in our country's industry and 6.6 percent in building-assembly. The high level of these rates and the maintenance of it in a

remarkably constant way for so long a period constitute an expression of the profoundly scientific and realistic policy of our party, indisputable evidence of the great possibilities that the Romanian socialist economy possesses on its way to forging the technical-material base of the communist society.

The growth of labor productivity in the main branches of industry, which have experienced more marked development, is higher than the average level in the economy:

Table

	1980/1950 Level of growth	1951-1980 Average annual rate (in %)
Electric power	21.0 times	10.6
Machine building and metal processing	21.2 times	10.7
Chemistry	21.4 times	10.8
Ferrous metallurgy	11.3 times	8.4
Construction materials	13.7 times	9.1

The year-by-year growth in social labor productivity and the obtaining of over 90 percent of the growth in national income by this means have caused a rise in the standard of material and cultural living of the whole populace. The net incomes obtained from the pay fund will be over 21 times higher in 1980 than in 1950, and the average salary will rise by a factor of nearly 7 in the same period.

A number of extremely important measures for improving the organization and management of the economy and social life have been adopted in recent years. Firm action has been taken to strengthen democracy and affirm worker self-leadership and economic and financial self-management, to improve the forms and methods of collective leadership, and to apply as well as possible the new economic and financial mechanism, with the transition to a new, higher quality and the obtaining of high efficiency in all economic and social activity being put in the forefront.

The important role attributed to the net-output and physical-output plan indicators has stimulated the thrifty spirit of the staffs of working people for the better utilization of raw materials and supplies, for the utilization of the material and human potential with high efficiency.

The results obtained during the years of socialist construction with regard to developing and improving the technical-material base of our society have led to a constant process of reduction of the gaps between the level of labor productivity attained in Romania and that of the economically advanced states. The general picture of the Romanian economy is therefore that of a vigorous economy in full swing, with harmoniously developed branches, equipped more and more widely with the newest gains of science

and technology, which is creating a sound basis for growth in labor productivity at steady rates in the 1981-1985 period.

Priority Orientations

According to the provisions of the directives of the 12th Congress of the Romanian Communist Party, in the next five-year period the Romanian economy will enter a new phase of its development. The strong affirmation of the scientific and technical revolution, the wide promotion of mechanisation, automation and cybernation of production, and the acceleration of the transition--on the basis of the quantitative accumulations--to a new quality in all fields of economic and social activity will provide marked growth in social labor productivity.

The 1981-1985 period will be characterized by high rates of growth in labor productivity, in terms of value and in physical terms, in all branches of material production.

The labor productivity in terms of value (calculated on the basis of net output) will have the following evolution:

Table

	1985 compared to 1980 (%)	Average annual rate of growth (%)
In industry	140.0-143.5*	7.0-7.5**
<u>In building-assembly</u>	130.0-135.0	5.4-6.2

* Calculated on the basis of gross output: 138.8.

** Calculated on the basis of gross output: 6.8.

The expected rates provide conditions for obtaining most (82 percent) of the increase in industrial production and the entire increase in the volume of activity in building-assembly by means of growth in labor productivity. At the level of 1985, a 1-percent rise in labor productivity in industry will be equivalent to an increase in production of 14.7 billion lei, as compared with 9.3 billion lei in 1980.

The provisions in the directives in connection with the raising of labor productivity in the 1981-1985 five-year period must be considered minimum targets. The working people have the high patriotic duty to act continually to fulfill and overfulfill these provisions, it being known that a general rise in the standard of living is directly connected with growth in labor productivity in all branches of material production.

Especially the following main orientations and premises, which will provide, as a direct or implied effect, a continual rise in social labor productivity, result from the programmatic documents of the congress:

The priority development of the peak branches, bearers of technical progress, which provide a higher degree of processing and utilisation of

material resources and energy. The matter of increasing at high rates the production of means of automation and computer technology, products of the industry of precision machinery, optics, hydraulic and pneumatic equipment and elements, machine tools and technological equipment--corresponding to the modern technological views and the high degree of qualification of the work force--is in view. At the end of the next five-year period, about 45 percent of the value of the production in the national processing industry will be obtained through the new and modernized products that will be put into manufacture. Labor productivity will be connected to a greater extent with the raising of the technical and functional parameters of the products, with the raising of the percentage of creative labor in the whole of social labor;

The intensive utilization of the machinery, equipment and installations, of all the fixed assets in the economy. The aim will be to improve the activity of maintenance and repairs, to provide the spare parts, the skilled work force and other material resources needed for normally performing this activity;

The strong development of our own base of raw materials and the expansion of the energy base, through the wider utilization of national resources, concomitant with the promotion of a firm policy of rational management of raw materials and strict economization of fuel and energy, which will have positive effects on the economization of social labor;

The optimization of transport relations and the expansion of modern technologies--palletization, packaging, containerization and transcontainerization;

The improvement of the utilization of the work force, by increasing the degree of employment and rational distribution of it according to the branches of the national economy. Thus, at the level of 1985, of the total population employed in the national economy--nearly 11.4 million persons--78.4 percent will work in nonagricultural branches, as compared with 70.9 percent in 1980;

The more efficient utilization of the available labor resources in all counties, the aim being to reduce the gaps between them in regard to the degree of employment of the work force. A number of new production capacities in smaller economic units, which offer the possibility of the more sensible placement of the workplaces in the zones and localities with less developed industrial activity, as well as of satellite units in localities near the big industrial centers, will be achieved for this;

The expansion of the role of the activity of scientific organization of production and labor in the more marked raising of labor productivity. The aim will be to increase the degree of concentration and specialization of production, to typify parts, subassemblies and products, to rationally organize the technological flows, to expand cooperation in production, to

improve the setting of work rates and to efficiently utilize worktime. The process of improving the ratio between the present categories of personnel, depending on the degree of mechanization, automation and cybernation of production, will continue;

The role of the new economic and financial mechanism, of worker self-leadership and economic and financial self-management, will expand, with provision being made for the growth of the responsibility of the staffs of working people in the preparation and implementation of the plans for production and for development of economic activity and of the income and expense budgets, in the efficient management of the part of national wealth that has been entrusted to them by society for administration.

(The second part of the article, which will present ways and directions of growth in labor productivity in the next five-year period, will be published in the next issue of the periodical.)

21 December 1979, pp 19-20

Text The wide-scale promotion and introduction of technical progress, of mechanization, automation and cybernation of production, the further improvement of the organization of production and labor, the raising of the qualifications and the improvement of the training of personnel will contribute to the marked growth of labor productivity in the 1981-1985 period.

Table

The main factors in growth in labor productivity	Percentage of total growth (%)	
	In industry	In building-assembly
The introduction of technical progress	51	56
The qualification and the improvement of the training of personnel	10	8
The better organization of production and labor	38	33

Among the methods of managing the economic processes, a leading role goes to the special programs for growth in labor productivity, an efficient instrument for implementing all the measures initiated by the party, and personally by Comrade Nicolae Ceausescu, for providing for the economic and social development of our country at the rates and in the proportions established by the 12th congress. At the level of the ministries, industrial centrals and enterprises, the programs for growth in labor productivity contain concrete measures and establish precise responsibilities for utilizing the internal reserves, permanently orienting the efforts of the staffs of working people toward the most rational and efficient actions for attaining the planned objectives.

Directions of Technical Progress

Thus, the provisions for the next five-year period in the Directive Program for Scientific Research, Technological Development, and Introduction of Technical Progress, approved by the 12th RCP Congress, provide the premises for steady growth in labor productivity, through measures along the line of the introduction of new technologies, the raising of the degree of mechanization and automation of the production processes.

The promotion of technical progress in industry in the next five-year period will be reflected synthetically in the steady growth of the degree of technical equipping of labor, expressed by the value of the productive fixed assets per person. The measures for devising new technologies and improving the existing ones will be intensified. Thus, in industry, over 1,200 new and modernized technologies, mostly of Romanian devising, will be introduced.

In industry, the intense application of gains in technical progress will have to provide for the continual modernization of the production processes, the acceleration of the process of renovation of production, and the generalization of automation and overall mechanization and of standardization and typification of products and manufacturing technologies, in order to more markedly reduce the consumption of live and materialized labor at the level of each particular product.

Here are a few of the concrete ways and directions in which the technical program will be oriented:

The extractive industry: modern technologies and methods for intensively exploiting all reserves of useful mineral substances will be devised, and the processes of mechanized cutting and loading of coal in frontal stopes, with high-performance mechanical means, will be developed and modernized. At the same time, the underground transport circuits will be rationalized and automated;

The metallurgical industry: the modernization of the technologies will have in view the obtaining of better assortments of steels, nonferrous metals and special alloys, semiconducting materials and so on, corresponding to the necessities of growth in the quality of production and in labor productivity in other branches of industry—especially the aeronautics industry, nuclear energy, electrical engineering and electronics. In addition, new technologies will be introduced into coking plants, blast furnaces, and the manufacture of flat sections and products, of high-precision pipes and of tubular material for deep drilling. Steps will be taken to improve the iron and steel assemblies and to increase their outputs;

The machine building industry: priority will be given to the assimilation of systems of complex equipment and technologies and the wide-scale application of standardized, typified and unified machines, equipment and

processes. The electronics, electrical-engineering and precision-machinery industries will concentrate on the achievement of components and products with high performances, which are to provide for the expansion of overall automation, mechanization, and cybernation in all branches of the national economy;

The chemical industry: a special accent will be put on the better utilization of the base of raw materials--crude oil, methane gas, salt and others--on the achievement of new materials and substitutes and on the devising of highly productive and efficient technologies with minimum consumptions of raw materials and energy. The existing technologies will be modernized and new technologies will be introduced into the processing of rubber and plastic and the production of medicines, dyes and chemical fertilizers. The management of technological processes with the help of process computers will be expanded;

The construction materials industry: action will be taken to improve the technologies for combustion in furnaces (in order to reduce fuel consumption) and the operations of transportation of raw materials and finished products and to diversify production and achieve products of higher efficiency, with a high degree of finishing and equipping in the factory. Installations and equipment with high performances, which are to provide for the mechanization and automation of the production processes, especially in the industries of prefabricated parts for construction and of ceramics, will be introduced;

In building-assembly, the aim will be, right from the design phase, to expand the degree of prefabrication of construction and installation elements, to typify constructions, to reduce the number of types of prefabricated construction and installation elements per object, and to introduce new construction materials and elements, which will lead to the elimination of wet processes and of work that is a big consumer of manual labor on the sites. The overall mechanization of earth- and concrete-work will be generalized, through the introduction of highly productive equipment. The activity of making modern forms in centralized shops will be developed.

The Professional Quality of the Personnel

The providing of skilled personnel, the training and the continual refreshment of the technical professional knowledge of all working people have a decisive influence on the growth of labor productivity, on the full and efficient utilization of the modern, highly technical and complex means with which the national economy is equipped.

In the 1981-1985 period, provision will be made for the professional training of 1.75 million skilled workers and 300,000 technicians, foremen, engineers and other specialized personnel, as well as of about 700,000 persons for expanding the industrial, construction and service activities in villages.

The meeting of the need for personnel for the basic branches—the extractive industry, metallurgy, machine building, chemistry, building-assembly activity, transportation and agriculture—will constitute a priority in the field of professional training, with the accent being put on raising the qualitative level of the training of the work force. Thus, about 1.10 million persons will be trained for industry, over 370,000 for building-assembly, over 130,000 for transportation and nearly 110,000 for state agriculture.

The retaining of all personnel in economics, science and culture, in all social activity, on all levels will be provided as a part of the action of continually improving the professional knowledge of the working people. Annually, over 2 million persons will be included in forms of retraining, so that in the next five-year period too each working person will participate at least once in a form of improvement. The assimilation of the knowledge needed for utilizing the modern techniques, the improvement of the organization of production and labor, the rational use of the work force, and the raising of labor productivity will be sought.

Organization--at New Levels of Efficiency

The continual improvement of the organization of production and labor constitutes an important way to utilize our economic potential with higher efficiency and to increase labor productivity at a rapid rate.

This must be conceived as a permanent activity, as a continual process, determined by the changes that occur in the quality and structure of the ways of production, in the training and improvement of the work force, as a result of the contemporary scientific and technical revolution.

A chief direction of development of the actions of improving the organization of production and labor will consist of the efficient use of the production capacities by all socialist units through the optimization of the flows of materials, the sensible placement of the sections, shops, equipment, workplaces and storage places, depending on the type and character of production, so as to obtain maximum levels of production and labor productivity. It is necessary to provide for the intensive utilization of all existing machines, equipment and installations, through the continual operation of them, at the level of the projected technical and economic parameters and the use coefficients provided in the state plan. An extremely important task of industry in the next five-year period consists of the expansion of work on many machines, so that the number of machines served by a worker attains the level achieved in the economically developed countries, under similar technical and organizational conditions. The generalization of work on many machines in the industrial units will be provided by the end of 1985.

It seems necessary, as early as the phases of designing the investment facilities, to introduce modern methods and techniques of organization of

production and labor and work rates or quotas for all products, activities and services, in order to obtain high levels of labor productivity. The studies and solutions regarding the organization of production and labor for the new investment facilities and for development and modernization of the existing units will have to be an integral part of the investment projects.

The organization of the activity of current and capital overhauls and repairs on machines, equipment and installations must be done on a basis of sensibly devised programs, with the necessary spare parts being provided, including through the recovery and reconditioning of them, in such a way that the time of immobilization for repairs is as short as possible and the work is performed at a high qualitative level, which would guarantee an increase in the productive time through the proper functioning of the machines at the expected parameters between two planned repairs. Along with the performance of the work, systematic action will be taken to modernize the machines and equipment, in the sense of raising the technical parameters and reducing the consumption of electric power and fuel. The actions for the proper use and the development of the maintenance sectors existing in the economic units will be accompanied by measures for expanding and diversifying the network of enterprises specializing in the repair of the various categories of equipment. The repairs on machine tools and equipment for general use will be performed in a centralized manner, according to geographical zones, ministries, industrial centrals or groups of enterprises.

It is necessary to intensify the action of rationalizing the activity of intraunit transportation, handling, packing, storage, loading, unloading and shipping of raw materials, supplies and products, through the use of the most modern and effective methods, which would provide for the optimum utilization of the traffic and storage spaces, the expansion of packaging, palletization, containerization and transcontainerization. The measures for modernizing the warehouses will pursue the sensible placement of them in relation to the manufacturing flow, the concentration of them, and the raising of the capacity through vertical storage and the mechanisation of service.

Optimum proportions will be established between the main categories of worker personnel, there being provided by this means an increase in the percentage of workers--and especially of directly productive workers--in the total of worker personnel, taking into account the qualitative changes which occur in the structure of the work force as a result of the introduction of technical progress and the growth of the degree of mechanisation and automation--and which alter essentially the content of labor and the mode of participation of the worker personnel in the transformation of the objects of labor into material goods and in the operation of the complex machines and installations, with a high degree of technicality, found in the use of the enterprises. The annual growth in the work force is to be used, for the most part, in directly productive activities. At the same

time, the service personnel will be dimensioned to the absolute minimum, in relation to the level of mechanization and automation of the production processes and of better organization of labor.

In grouping the technical and other specialized personnel, it is necessary to take into account the way in which they participate, directly or indirectly, in the creation of material and spiritual assets, of national income, in the creation of national wealth.

The economic and social information system will be improved, in order to become an efficient instrument of management on all levels. The process of equipping the units in the basic branches of the economy with computer technology and of achieving information systems for administration, as well as for the management of the technological and of production, will be accelerated.

Special attention will be devoted to the problems connected with improving the working conditions, with widely promoting the measures for labor protection and safety. At the level of the workplaces, the aim will be to eliminate the sources of noxes, to eliminate noise and other environment-polluting factors and to provide normal working conditions in all production sections and shops.

The high degree of technical equipping of the enterprises and the dimensions and complexity of the production processes necessitate the matter of devising at the level of each branch, central and unit a strategy and tactics that would provide a higher level of labor productivity. It is the duty of the collective leadership bodies, within the framework of preparing the 1980 plan and the next five-year plan--in the spirit of the tasks resulting from the documents of the 12th RCP Congress, especially from the report presented by the secretary general of the party, Comrade Nicolae Ceausescu--to supplement their own programs for growth in labor productivity and to organize the rigorous implementation of them, with a spirit of responsibility, so that our economy attains the rates of development and the level of efficiency established by the congress.

12105
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ROMANIA

MOVE TOWARD STANDARDIZATION IN CONSTRUCTION INDUSTRY

Bucharest REVISTA ECONOMICA in Romanian No 49, 7 Dec 79 pp 1-3, 15

Article by Radu Negru, director general of the Central Institute for Research, Design and Direction in Construction/

Text The 12th party congress, having established through the directives adopted the guidelines and proportions for development of the material-technical base of Romanian society in the coming period, provided a volume of investments of 1.3-1.35 billion lei for the next five-year plan, which is higher than what was achieved in the entire 1951-1975 quarter-century.

In the masterly report presented to the congress, stressing that "a construction program of such scope means the broad-scale application of superior construction solutions," the party secretary general, Comrade Nicolae Ceausescu, drew attention to the following: "We must permanently seek the growth in the economic efficiency of investments, one of the basic requirements for the continued development of the national economy and for the increase in the entire population's wealth."

The quality-efficiency relationship in this area is detailed specifically in the guidelines and tasks included in the Directives of the 12th party Congress, continued reduction in the share of construction-assembly costs, application of improved construction solutions, extending their standardization and utilization of model designs.

The visit which Comrade Nicolae Ceausescu made recently at the exhibit organized at the exhibit complex at Scanteia Square and the broad dialog which our party and state leader carried on at this time with leadership cadres in the ministries and other central institutes and with specialists in the technological research and design units and the industrial centrals and enterprises were established in a thorough analysis of the way in which the program for standardization in construction is being carried out, an action taking place at the level of the entire national economy with a view to the more pronounced reduction in material, energy and fuel consumption. Once again, it was a confirmation of the continual care which our party and state has for utilizing the resources allocated in the investment program with maximum efficiency and

for building construction-assembly projects, including through the standardization of construction.

Truly, standardization is one of the main levers for total affirmation of the scientific-technical revolution and the transition to a new quality in the activity in the construction branch.

Of course, standardization of elements, subassemblies and even some entire projects is a method which long has been applied and checked in the practice of construction design in Romania. The plan for construction standardization, which has been compiled annually for more than two decades, starting with 1975 has been included in the single national plan for Romania's social-economic development as one of its appendices and it contains provisions through which the great majority of design institutes and centrals of the ministries and county people's councils are involved in the standardization activity; the Design Institute for Standardized Construction, which has amassed rich and valuable experience in its more than 23 years of existence, plays a particularly important role in promoting the standardization concept and in aiding the industrialization of construction in this way.

Attributes of the Technical and Economic Efficiency of Standardization

What are the characteristic features--or at least the most important ones--which make standardization today represent one of the decisive measures in the progress of construction?

Standardization is an indispensable condition for continuing the process of the industrialization of construction and for the gradual change of the worksite activity into a chain of mechanized processes, predominantly processes for the assembly of modulated elements and subassemblies made in the plant beforehand.

Extending the utilization of standardized construction solutions has as its corollary reducing the consumption of resources involved in construction activity. Differing from the current method of designing investment projects, for which the often very tight schedules for drawing up the designs do not allow a study of more versions and finding the best solutions, standardization basically contains the obligation to make a thorough analysis of all the possible alternatives, bringing out the advantages and disadvantages of each one and selection of the ones which meet the conditions for superior performance and minimum material consumption.

Broad utilization of elements, parts of projects and total projects which are standardized at the same time permits a large saving of the valuable job of design and assures a considerable rise in the capability of the design organizations.

Adoption of a standardized solution brings greater certainty in the operation of construction, not only because the most refined calculation procedures are used in working out the model designs by using automated data

processing but also due to the fact that only the elements, subassemblies and structures are used in mass production which have been carefully tested in specialized laboratories and for which, following this checking, the necessary improvements have been made.

Finally, standardization contributes to increasing labor productivity on the job site by reducing the variety in the types of elements contributing to the construction of the project and by simplifying the combinations among them.

All these features of standardization have been known for a long time and, perhaps, their validity does not have to be emphasized. Despite this, the standardization of construction, although it has recorded obvious success particularly in the last three years, until recently was going through a state of stagnation which was not permitting the exploitation of all the resources of efficiency which it contains.

Factors Which Have Hindered Development of Utilization of Model Designs

I feel that at least two of the causes of this situation should be mentioned.

In housing construction the degree of utilization of model designs has reached more than 90 percent and 75-80 percent for social-cultural buildings. These high percentages are explained by the fact that the functional requirements and demands or those resulting from adaptation of the design to the conditions of location for the designs of these types of buildings do not involve resorting to frequent changes in the design with time or at basically redoing it. The architects long have recognized that standardization in these areas does not lead to monotony but, on the contrary, it offers vast opportunities for diversification, for differentiating developments, for creating forms and spaces able to express architecturally what is characteristic of the Romanian spirit and sensitiveness.

However, the situation of industrial or engineering construction is entirely something else. In these cases we meet two categories of construction which should be treated differently from the viewpoint of the subject which concerns us.

A first category is that of the projects of vast proportions for which the field conditions are decisive in selecting construction solutions, since both the stability as well as degree of economic efficiency of the investments depend on them. For example, included here are the dams, navigable canals, irrigation systems, big port projects and so forth--that is, projects which by their very nature are singular ones and which objectively are not suited to standardization except through some details or component parts which accidentally may be repetitive. (In this regard, it would be absurd to speak of the standardization of the Danube-Black Sea Canal or the Iron Gates II hydroelectric power complex, although it is indisputable, for example, that the solutions for lining the canal's banks or some construction solutions for the generator halls at the dam are perfectly standardizable.)

Assembly projects, technological operations which are linked directly to the characteristics of the equipment being assembled, also fit into this category.

A second category is that of the actual industrial buildings whose construction in a greater or lesser proportion depends on the production technology it is housing.

This category of project generally determines to what degree the model designs are utilized. In recent years, this degree (which expresses the ratio between the value of the projects worked out on the basis of model designs and the total value of the projects designed) has varied between 25 and 40 percent in the industrial design institutes (we even feel that these values reported were considerably overestimated at that time). The explanation supplied regarding this reduced level of utilization of the model designs generally was that the technologies are continually being improved and that, thus, the opportunity does not exist to reutilize that same design--without basic changes--for another investment project, even if the raw materials, finished product and production capability were the same. Under the compulsion of the technologist--better said, protected by the freedom of conception conferred on him--the construction designer each time "puts on" the technology in a single construction in which, in the best case, only some of the construction elements have been standardized. It seemed clear that breaking this vicious circle should start with the standardization of technologies. The attempts made in past years to convince the industrial design institutes to move to a new concept of standardization, where the subject of the model design should not only be part of the construction but the object of the investments in its entire complexity (and, thus, construction + installations + technology) did not end with results.

This situation is the first of the causes mentioned for the stagnation in which standardization in construction has been until recently.

A second cause on one hand refers to the area of standardization and, on the other, to the content of the concept of standardization.

At the beginning of 1979 the important ministries which held annual investment volumes of billions of lei only had model designs for several unimportant projects on the list of model designs valid (transformer posts in the halls, accumulator loading stations, foundations of equipment for cold processing, plant chemical analysis laboratories, azotic, sulphuric and phosphoric acid deposits, compressed air centrals, oxygen installations and so forth).

At the same time, only elements and some details of architecture and installation were standardized, in the actual sense of the word, for the model designs for ground-floor industrial halls which, through the variety of openings and bays modulated, are intended to cover the requirements for many industrial branches. There were the so-called example solutions, but the model design for the whole hall was missing, one which was worked out down to the last detail of execution, which would be taken over as such for utilization

of the investments by the designer and then sent to the job site without any additions or changes being made.

These factors, too, have been important elements hindering the creative development of standardization in construction in Romania.

A Turning Point, An Innovative Concept

Under these conditions, the analysis made and the directives given by Comrade Nicolae Ceausescu, the party's secretary general, at the working meeting which took place on 16 July 1979 in Neptun--that all the standardization activity should be organized in a unified concept for the economy as a whole so that improvement in the activity of concept and design, optimum use of production capabilities, saving on material and financial resources of society, growth in labor productivity and broad promotion of scientific-technical progress in the national economy--marked a true turning point in the job of construction design, a basic change with long-range quality repercussions of exceptional value.

As we know, Council of State Decree 274/1979 created the party and state Commission for Problems of Standardization for the Economy, headed by Comrade academician Dr Eng Elena Ceausescu, chairman of the National Council for Science and Technology. This commission coordinates, guides and controls all the standardization activity carried out by ministries, other central organs, central institutes and academies in the field. At the same time 10 standardization commissions were established by branches, among which is also the one for civil and industrial construction.

Under the guidance of the party and state commission, the Commission for Standardization for Civil and Industrial Construction immediately took the necessary measures so that the main design organization would be involved in the action for construction standardization; at the same time, it established permanent ties with the branch commissions in the industry producing the standardized materials and equipment used in construction.

It has taken action along two main lines, with its goal being to extend standardization to the maximum. First, it has sought to restrict the number of design solutions worked out or being worked out, within whose content flagrant parallelisms were found in many cases. This restriction meant a detailed analysis of the entire stock of designs intended to be used for the projects included in the investment program for 1980 and for the future five-year plan and selecting from them the best ones from the viewpoint of technical-economic indicators. In the cases where not one of the existing design solutions were appropriate, indications were given regarding working out a new model design whose parameters would be included in the commission's requirements.

Second, it was sought to extend the area of standardization to new areas of construction for which model designs had not been worked out in the past or where the existing designs covered only a very reduced portion of the economy's needs.

Special attention has been given to the standardization of projects and portions of construction projects which are common to more than one branch.

The activity in this area, mainly carried out within the Design Institute for Standardized Construction, has involved a detailed analysis of the technological requirements of the various industrial branches so that the unification and restriction on types of construction do not deprive the investments of those categories of projects which have proven to be strictly necessary or to reduce their economic efficiency. At the same time, efforts have been concentrated on improving the construction solutions for the model designs existing with a view to maximum reduction in material consumption.

Coordinated Action and Eloquent Results

It is important to emphasize that the action for standardization of construction has taken place together with another action initiated by the Central Institute for Research, Design and Direction in Construction and the State General Inspectorate for Construction Investments, aimed at reducing the consumption of fuel and energy in the operation of buildings through improvement in their heat protection. It was necessary to have a correlation of the solutions specified in this area with the construction solutions which were being standardized or being selected for standardization; in particular, this was carried out with regard to the construction projects common to more than one branch.

During the process of working out the model designs for the construction projects common to more than one branch, the concept was formed that this category is comprised of two separate groups, at least in the current stage: model modules and model designs.

Model modules are component parts of a project which, through repetition in the necessary number of times, is the project at the desired size. So, the model modules for buildings of multi-stage production are established from a model (frame) (a building for the entire width but only a bay in the length) which expresses the nature of the construction structure and with whose help, through repetition, buildings of any length may be put together. The model module was worked out for multi-stage industrial buildings, roofs for the ground-floor industrial halls, exterior and interior walls in industrial buildings, social annexes for production buildings, storage buildings and scaffolding for conveyor belts and so forth.

The model modules and designs mentioned cover nearly completely the design needs for the particular construction projects in industry. It also should be stressed that they are based mainly on the integration of standardized prefabricated elements whose nomenclature was agreed upon in advance with the producers of materials and prefabricated parts.

With regard to the activity for standardization of construction projects specific to various branch, it has comprised an extremely vast area of projects in areas which include industrial, agrozootechnical, hydrotechnical and transportation construction, housing, buildings for education, for health protection,

culture, trade, tourism, sports, services of the artisan and consumer cooperative. For the first time, projects of great importance for the national economy have entered the list of model designs, such as coking batteries, rolling mills for sections and pipes, casting bays, manufacturing halls for the polymerization of isoprene, thermoelectric power centrals with hot-water boilers up to 100 Gcal/hour, microhydroelectric power centrals with Francis and Kaplan spiral turbines, sections for the production of prefabricated elements of reinforced concrete and autoclaved cell concrete, cotton and wool spinning mills, grain silos of 45,000-ton capacity, factories for combined fodder of 60,000 tons/ear and so forth.

In most cases, the standardization of buildings and other industrial and agrotechnical construction could only be done with appropriate standardization of the very technological process and equipment housed in construction. The goal of economic investment should be viewed in its complexity, with the interdependence between technology and construction requiring a new type of standardization. Of course, whenever possible, the model designs for common buildings and construction were used in working out the model designs specific to these branches.

The following paragraph presents the main results of the first stage--recently concluded--of the action for standardization and expresses only partially the efficiency of a phenomenon whose complexity involves and is a condition for a multitude of technical and economic factors. However, they do give a picture of the reserves which can be launched by the consistent application of the principles of standardization in the construction branch in accordance with the indications of the party's secretary general. Clearly, we still are facing a long road in order to fully utilize the opportunities which this concept contains.

This fall the first stage of the action for standardization of construction on the basis of new guidelines was concluded. The results, the overall picture of which was presented at the exhibit, are clear: 25 design organizations of the county and Bucharest Municipal people's councils and 33 institutes and design centers of the ministries and central organs participated in working out model designs; 707 model designs, for whose completion 1,541 designs would have been needed before action could be taken, were presented for approval. Among them are 144 modules and model designs for projects common to more than one branch, which under the old concept would have necessitated 314 designs. The designs worked out in this stage will cover the need for around 72 percent of the construction projects and those for the attached installations which will be executed according to the model designs in the 1981-1985 period, with the remaining 28 percent to be carried out on the basis of the model designs which will be compiled in the common annual stages. In total, 65 percent of the construction-assembly projects in the next five-year plan will be executed according to model designs with the remainder (single projects and technological equipment assemblies) not being able to be standardized. According to a preliminary evaluation, the efficiency of applying the model designs worked out in Stage I in the future five-year plan will be seen in the following reductions compared with the solutions borne in mind previously:

Nearly 600,000 tons for cement consumption, more than 130,000 tons for steel consumption, more than .6 million tons of conventional fuel for energy consumption and around 4.8 billion lei for the volume of construction-installation projects.

The standardized construction solutions must continually be reanalyzed and improved so that the model designs reflect the newest scientific and technical achievements in Romania and from abroad and take into account the new and efficient construction materials introduced into manufacture. At the same time, the area of application for standardization should be extended constantly in order to comprise more and more construction categories which today are considered as part of the ones not suitable for standardization. The area of standardization, at the same time, may be broadened by including some technological procedures for carrying out the construction projects on the job site with the use of standardized construction equipment in the standardized solutions alongside the construction projects and elements.

All this means new, more difficult tasks in carrying out the process for standardization of construction further. However, these tasks are commensurate with the technical capability of the construction engineering corps in Romania, mobilized by the important prospects and responsibilities resulting from the documents of the 12th party congress.

During the visit to the exhibit, Comrade Nicolae Ceausescu, appreciating the efforts made by the ministries, departments, industrial centrals, research and design institutes and specialists in the area of the standardization of construction, gave particularly valuable indications for improving some of the designs presented and some manufacturing technologies and for building more simple and lighter halls of a good size in some of the industrial branches and for producing prefabricated parts with a reduced consumption of cement. At the same time, goals were formulated for the entire activity of standardization and design in general. The party's secretary general requested that action continue to be taken with all firmness to obtain substantial reductions in the consumption of basic materials, primarily metal and cement, per square meter of construction, that the simplest and most efficient solutions be found which would lead to building all the industrial and social-cultural constructions under conditions of maximum efficiency and quality, that measures for improving the model designs be made more definite even this month so that they can be applied even starting in January 1980.

Specialists in research and design are being mobilized to continue putting forth all their efforts and all their creative abilities for exemplary fulfillment of the indications and recommendations made to them and of all the tasks belonging to them from the 12th party congress decisions and documents for implementation of the vast investment program in the coming years.

8071
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ROMANIA

RECOMMENDATIONS TO FURTHER STANDARDIZATION PROCESS

Bucharest REVISTA ECONOMICA in Romanian No 50, 14 Dec 79, No 51, 27 Dec 79

Article by Dr Eng Ion Hera Bucur: "Typification and Standardization of Products"⁷

No 50, 14 Dec 79 pp 5-7

Text⁷ The Directives of the 12th Party Congress on Romania's socioeconomic Development and the Directive-Program for Scientific Research, Technological Development and Introduction of Technical Progress recently approved by the communists' highest forum specify, for the first time in program documents of such importance, the particular role of standardization and typification tipizare⁷ in the economy as follows: "Special emphasis will be placed on minimizing the standard sizes and varieties of materials, parts, subassemblies and products, especially in metallurgy, machine building and the chemical industry. Modern methods of design will be introduced on a broad scale, based upon typified materials and elements and upon interchangeable subassemblies, devices and units that will enhance effectiveness both in the sectors supplying materials and equipment and in those that use them and will meet the increasingly diversified demands of our economy and the foreign market for machinery, equipment and installations.

Improved typification and standardization is to meet some objective requirements and current situations in the field of material production, such as the rapid growth of the list of products under the influence of the present scientific-technical revolution, the accelerated diversification of production, and the greater complexity of the machinery, equipment and manufacturing processes. All these call for promotion of new methods of planning, design and manufacture in order to assimilate the necessary technical systems promptly that will be of a quality and reliability adequate for a specialized manufacture of high economic effectiveness.

Meanwhile, thanks to modernization and intensive equipment of the main economic sectors with technical means produced in Romania or imported, most of which are the last word in science and technology, our planning institutes

and enterprises have acquired over the years a valuable potential of structural types, solutions, plans and experience that can be efficiently used solely by applying the methods of typification and standardization and especially the principle of selection of existing solutions tried in practice. A general idea of the extent and importance of the problem can be conveyed by the fact that one sector alone, that of machine building, is now manufacturing nearly 300,000 standard sizes of various products, from simple metal articles to automation means and appliances, to say nothing of several thousand new machines, devices and manufacturing processes that are assimilated in manufacture every year.

The importance now attached to standardization and typification in our society and the complexity of the problems now confronting these activities make it necessary to explain to wide circles of engineers, technicians and other interested elements some theoretical and practical points about the scientific nature of standardization and typification, the distinction between their functions, the prospects of their future development etc.

Stimulation of Technical Progress

The purpose of standardization is to solve by means of the Standards a series of problems of determining the best ways of organizing technical progress, of improving product quality, and of conserving material resources and manpower. The scope of standardization is so broad that it may be said without exaggeration that scientific, technical and industrial progress are now impossible without adequate development of this activity and extensive application of the technical standards and norms.

Subject to an extensive process of regularization and mathematical treatment, and being in a close interaction with other borderline disciplines like technology of materials and machine building, strength of materials, sociology, the economic disciplines, and the science of production management, standardization keeps expanding its field of scientific investigation and objectifying its working methods and system. A result of the experience acquired in industrial production and the need of rational uniformity in the products, documentation, solutions and manufacturing processes, standardization has now become a transforming productive force expected to proceed ahead of production and to help introduce the latest scientific-technical discoveries into industrial practice.

The terminological aspects play an important part in studying the nature of standardization and defining its scope, since clarification and uniform definition of basic operational concepts facilitates the collaboration of the elements with interests and tasks in this field as well as guidance of the activity on the levels of the industrial sectors and the national economy as a whole. Use of precise and unambiguous terminology is evident in all branches of science and technology, but in standardization this is particularly necessary because by its very nature and general significance standardization means order, organization and regulation. Designed to minimize waste of effort and materials by simplifying operational processes and improving shipping and

marketing methods, standardization enhances the nation's potential in all respects, scientifically, technically, intellectually and by its more effective use.

In the last few years typification has received special attention in our economic activity. There are many definitions of it in the current literature, but none of them has official sanction at home or abroad, just as the relationships between it and standardization have not been sufficiently clarified, nor whether it can be regarded as an independent discipline with a methodology and principles of its own or whether it is an integral part of standardization. We regard typification as an aspect of standardization intended to rationally reduce the diversity of types, structural features and sizes of machines, equipment and their components for purposes of their centralized and highly efficient manufacture. Typification particularly concerns the forms of articles, subassemblies, compound parts and manufacturing processes and the adjustments in forms, norms and rational dimensions according to their functional purposes that are made in preparation for manufacture.

Typification takes many forms in industrial practice, simplification, unification, combination /agregatizare/ and prefabrication, each of which involves one of its aspects. The basic principle of simplification is reduction of the list of products, which lowers the operating cost. The data of the technical literature indicate that if the series of machined subassemblies and parts is unified their cost is reduced by about 15 percent because the manufacturing processes are rationalized, the machines are used more efficiently, and the workers' dexterity is enhanced.

The great possibilities of applying production simplification to our economy were brought out particularly during the last program of this kind started after the Neptun Conference of Technological and Construction Designers on Typification Problems (July 1979) and recently concluded. The program showed that over 370,000 standard sizes (nearly 50 percent) out of about 736,000 standard sizes of products now in manufacture in metallurgy, machine building, chemistry, construction materials, light industry etc. can be reduced, with expected savings of about 1,099,000,000 lei in 1980 and over 5.1 billion lei during the 1981-1985 Five-Year Plan. The main share (85 percent of the inventoried and analyzed list) is in machine building and metallurgy, where 124,800 and 204,000 standard sizes respectively (about 53 percent) of machines, equipment, installations, rolled and drawn products, pipes, marks of steel etc. are proposed to be eliminated from manufacture. The proposed reductions concern, among others, types of machines and varieties of materials resembling each other which are for the same purposes but have different characteristics to no purpose, which are manufactured according to older designs with outmoded technical-economic parameters and standard sizes rarely requested by beneficiaries, and which can be replaced by usual varieties. Possibilities were also found for domestic manufacture of a considerable number of products that are now imported.

But the specialists in the field know that the typification program has much more far-reaching favorable effects and results if reduction is not confined

to simplification of production and cutting manufacturing costs per unit of output but also consists of designing new standard sizes, systems and families of products with high performances through use of the other advanced forms of typification and especially structural unification, combination and prefabrication.

Means of Further Improving Quality

Typification and standardization are being increasingly promoted as main ways of improving the quality of products and securing their lasting competitive power. The products' characteristics of performance and reliability that are obtained when their manufacture is completed and checked on the testing stands, as well as their further maintenance, are a direct result of the process of typification and standardization.

As a basic quality of manufacturing equipment, performance is included in the basic principle itself of dimensional typification, used to determine the optimal parametric series whereby the new typified solution is intended to associate and synthesize the most diverse operational demands upon the equipment in question as far as possible. The next stage of typification, structural unification, supplements and enhances the process of designing products adapted as accurately as possible to the operating conditions. A result of the development of scientific studies of machine building, unification is intended to create common (unified) parts and subassemblies in a relatively new condition that can be used through combination /agregare/ and their interchangeability in machinery and equipment differing in function, capacity, size etc. A subassembly is considered unified if it can be used without modification in at least two products differing in size or function. At the International Symposium on Typification held in Moscow at the beginning of this year the experts of the well-known West German firm Mercedes-Benz reported that use of structural unification of production of trucks and buses had enabled the firm to make out of a limited number of subassemblies and compound parts as many structural variants as were needed to make not only the domestic transport means competitive but also those in demand on the foreign market, under very different conditions of climate, geotopography, and legislation of the countries where the motor vehicles were sold.

Many of our enterprises and institutes of scientific research and technological engineering are implementing similar projects for structural unification and combination, characterized by a constantly rising technical-scientific level and high economic effectiveness, a fact realized by all those who watch, year by year, the evolution of this activity at the exhibitions of new equipment and typification, the annual symposiums on typification in machine building, and other meetings of this kind organized on various occasions. For example in the last few years alone the ICPAP /Institute of Scientific Research and Technological Engineering for Motor Vehicles and Tractors/ in collaboration with the tractor and truck enterprises in Brasov has designed various unified families and series of nonsteering /nedirectoare/ driving axles /pungi/ for industrial and agricultural tractors, construction equipment, equipment in the forestry industry, and trucks of various

capacities. Composed of a limited number of standard sizes (14 in the case of industrial tractors), the axles contain structural solutions adequate for the whole range of tractors and trucks essential to the national economy with such key subassemblies. The adopted methods of calculation and design are based upon study of the stress systems to which the axles are subjected in operation on the road and with the most diverse loads, so that one and the same assembly can be used with minimal adjustments in construction of a great many machines with different technological functions but similar operating conditions.

Since 1,635 components were needed to make 14 standard sizes of driving axles but only 18 percent of them are original (specialized) and the rest are structurally unified (and consequently common), it was possible to supplement structural unification with technological unification, considerably reducing the number of machine tools and tools, and to shift the processing of a number of components to highly productive machine tool units.

Specialists took particular interest in the results of the Industrial Engineering and Research Center at the Cluj-Napoca Unirea Enterprise, reported for several years running at the symposiums on typification in Brasov, in structural unification and prefabrication of multipost textile machines for synthetic threads. On the basis of study of the technological product of spinning threads and rationalization of the geometry of spinning, families and systems of machines were designed with a great many particular variants but derived from only a few basic machines. This was a practical demonstration of the possibility of resolving the contradiction between the need of diversifying manufacturing machinery and reduction of the list of subassemblies, assemblies and original compound parts. By virtue of the technological approach to the problem of typification, the mathematical system and the electronic computing equipment used in rationalizing the variants of machines, the papers read represent peak solutions on both the national and world levels.

Reliability is the second parameter of quality capable of major improvements through typification. This is because typified structural elements (assemblies, subassemblies, modules and repeatedly used compound component parts), as contrasted with those designed to be used once or twice, permit not only more careful design and construction in specialized enterprises but also their reliability trial on test stands before incorporation in the machines in order to check whether their running in, interchangeability, and coefficients of safety and durability are satisfactory. The greater reliability of products designed on the basis of modules is also the result of use in the same machine of interchangeable elements of various standard sizes and readily replaceable with others according to change in the environmental parameters that act upon the machine in question, as for example the category of the spaded land for terracing equipment, the condition of the road for motor vehicles, etc.

Unfortunately the advanced conception upon which the idea of structural unification and prefabrication is based is often impaired when the organizational, technical and manufacturing conditions are not met upon which it depends. Poor manufacture in unspecialized enterprises of equipment in the heat

ment shops makes it impossible to replace the modules from one machine to another as required by the operational process, although the respective families of machines were designed according to the very idea of interchangeable modules. Products modernized by typification cannot be assimilated if a specialized enterprise lacks the capacity, and they continue to manufacture the obsolete ones of low productivity and reliability or they resort to imports. There are many cases where the specialized enterprise has assimilated the new product but the latter is transferred to other enterprises for various reasons at the very stage where series production should begin.

The example of foreign enterprises specializing in production of relatively simple equipment and subassemblies (couplings, bearings, burners for furnaces assembly parts, fittings etc.) shows that small shops with a few workers and modest equipment can solve problems of great economic importance for the very reason that they have maintained their respective specialties for a long time. This experience should be studied and followed, since a number of shops converted from artisan cooperatives to machine building in recent years lend themselves to specialization and centralized manufacture of couplings (cog-wheel couplings, adjustable moment couplings, friction clutches and ball sockets), various kinds of bearings, chain wheels, tighteners and other parts.

The experience of the industrial engineering and research institutes that have made considerable progress in typification clearly indicates that uniform thinking in typification is furthered when these projects are implemented with the centralized fund for new equipment, which makes it possible to approach all equipment within the unified series, family or systems of machines from the start. But some typification is also possible when the equipment is made with investment funds, provided that the various beneficiaries' orders are grouped in the stage of drafting the order notes and design projects so that the equipment designer can consider the whole series of projects to be designed and manufactured over a longer period. In this case it would be necessary to introduce a centralized recording system (possibly on the basis of punch cards or tapes) for equipment of the same type essential to the various sectors of the national economy, the design and assimilation of it to be maintained in the same design collectives and manufacturing units.

Approval of the products, or rather delay in their approval, is another factor that largely defeats the favorable effect of typification upon product quality. There are sectors of activity where more machines are now produced than can be approved, the gap is constantly growing, and it often happens that hundreds of copies (industrial heating furnaces for forges) of a type of equipment are made when the model or zero series has not been checked in operation or approved. Measures to induce the manufacturer, beneficiary and designer to implement approval have become urgent in the machine building industry. It should be noted here that the regulations in force which permit manufacture of machines, equipment and installations in a "single-design system" and which are often abused because they permit artificially raising the invoicing price of the product, have now become a serious impediment to product quality. Therefore studies and analyses by specialists are needed to eliminate all the negative factors interfering with the favorable effects of typification.

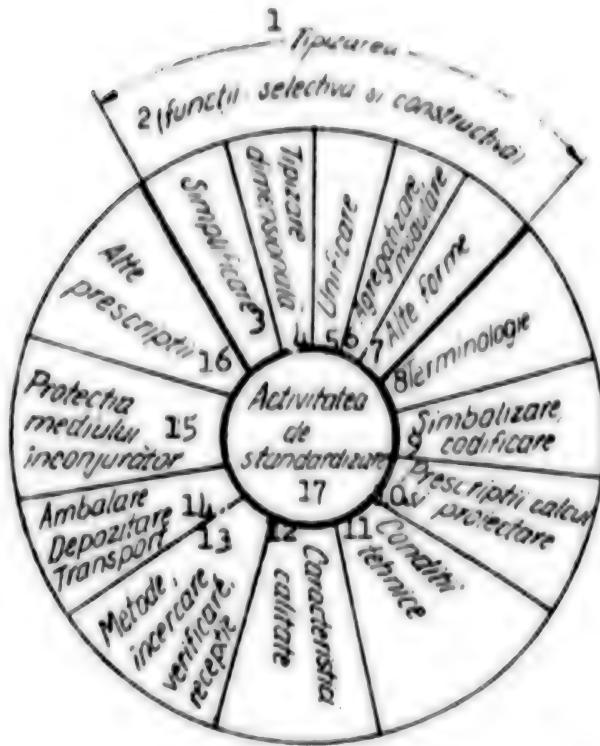


Figure 1. Diagram of the Content of Standardization

1. Typification	10. Prescriptions, calculation and design
2. Functions: selective and constructive	11. Technical conditions
3. Simplification	12. Characteristics and quality
4. Dimensional typification	13. Methods of testing, checking and inspecting
5. Unification	14. Packaging, storage and transport
6. Combination and prefabrication	15. Environmental protection
7. Other forms	16. Other prescriptions
8. Terminology	17. Standardization activity
9. Symbolizing and codifying	

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Text Besides their contributions to technical progress and constant improvement of product quality, typification and standardization are powerful means of enhancing economic effectiveness in all stages of the production process from planning and design to manufacture of the products. In fact obtaining high economic effectiveness in both mass or large-series production and individual or small-series production is the main idea basic to introduction of methods of rationalization through typification and

standardization. It should be mentioned that technical-scientific instruments like typification and standardization have been created in recent years for efficient use in the cases of both individual and small-series production, where it used to be considered economically unimportant and technically very difficult to advance such principles.

High Effectiveness for Producer and Beneficiary

Reduction of unwarranted diversity of types of products and organization of mass and large-series manufacture in specialized enterprises by advanced manufacturing methods permit intensive growth of economic effectiveness. Moreover improved product quality and reliability ultimately means high effectiveness through reduction of the number of installed machines, the area of the shops, and the investment outlays. Typification and standardization of products permit major savings in costs of designing structurally unified or prefabricated products. Though these costs are rather high at first, the curve of research and design costs goes down in the meantime and shows a continuing decline with series manufacture of the products. The figures in the technical literature as well as the records of the ICSITPSC [Institute of Scientific Research, Technological Engineering and Design for Heat Treatment Shops in Machine Building] on modular design of families of installations for heating by induction, industrial furnaces, foundry equipment etc., to cite just one example, show that structural typification reduces the volume of blueprints by 4-7 times, the time of designing new products by 4-5 times, and the handling cost by nearly 40-50 percent.

While pointing out the favorable effects of typification, we cannot overlook the contradictory aspects of it with psychological effects often causing open or veiled opposition to application and expansion of its principles. I do not have space here to discuss in depth what we may call the diversification-typification dilemma of the modern machine industry, but I will say that by rationalizing the structure of the standard-size series of products with the aid of modern computing methods it is intended to solve the problem so that the determined assortment will be optimal from the standpoint of the national economy as a whole and not of any one of the economic sectors interested in the respective product. This method of preparation also makes it questionable whether obligatory use should be made of the normal or preferred numbers in planning the standard-size (parametric) series of products, since it is often efficient to form the series according to the data obtained from the rationalizing calculations and not according to the predetermined criteria. Obviously the ratio of the standard-size series will be less and consequently the series more compact the greater the requirement for the products is and vice versa.

Among other factors affecting the density of the series, frequency of use of the installed capacity plays an important part regardless of whether a machine is designed for constant use with a full load or only for occasional use. Nor can we overlook the outlays necessary for repair or maintenance of industrial equipment in operation, since the probability of their breakdown and repair is much higher when they are operated intensively and with loads

approaching or exceeding their endurance capacities. In the latter case the outlays on maintenance and repair of the overloaded machine in operation often exceed its initial cost by several times.

Accordingly under the present conditions typification of products calls for mastery of the whole problem, uniform calculations and a much more systematic effort than design of the individual products if the rationalizing process is to determine the advantageous alternative. The possibilities of modern typification, based on the foregoing considerations, can be illustrated by referring again to some projects of this kind that have been implemented. For example typification in several stages (from dimensional typification to modular unification and combination, by the Sibiu Branch of the ICSITPSC) of four groups of furnaces for quality heat treatments in the temperature range of 650°C-1,100°C reduced the total weight of the furnaces by about 60 percent, the heat accumulated in the brickwork and that necessary to heat the furnace by about 80 percent, the time of heating the empty furnace by about 70 percent, and the space in the shops occupied by equipment by 30 percent (Figure 2).

And since typification, just like output quality, is an evolving concept with possibilities of improvement that are revealed to us as the technical and technological solutions are probed, the efforts to improve the equipment for heat treatment shops are continuing ones. For example it has been found that by redesigning the combustion furnaces for melting nonferrous metals to reduce their energy consumption and their complement of discharge burners according to the real consumption it is possible to avoid the additional inputs occasioned by their overproportioning and the forcing of the melting process due to surplus heating capacity. Revision of the blueprints for the dimensionally typified families of electric furnaces with movable hearths designed for heat treatments can enhance their performance and diversify their installation conditions (as with a single door system used under various operating conditions), lower the capacities of the electric motors by improved methods of activating the hearth and doors, and considerably reduce the thickness of the wall linings and the energy input accumulated in the brickwork by expanding the ceramic fibers of high resistance and elasticity. More rational prefabrication of shaft furnaces can improve the construction-installation conditions of these heating installations, their performance and the uniformity of the heating.

Toward a New Quality of Standardization and Typification of Our Products

The difficult problems facing the two activities today, in addition to the contradiction between the producers' tendency to make few sizes and types over longer periods of time and the beneficiaries' interest in getting a product made especially for their needs, make it necessary to meet both the requirement to minimize the standard sizes and varieties of materials and products for the greater economic effectiveness of their manufacture and the requirement to diversify the assortments of machines, equipment and installations for the fullest possible satisfaction of the demands of the domestic and foreign markets. This necessity requires all elements with interests and tasks in this field to adopt more scientific methods of typification and standardization than those so far in use, with a shift of emphasis to combination and its natural corollary, organologic specialization of the machine-building enterprises.

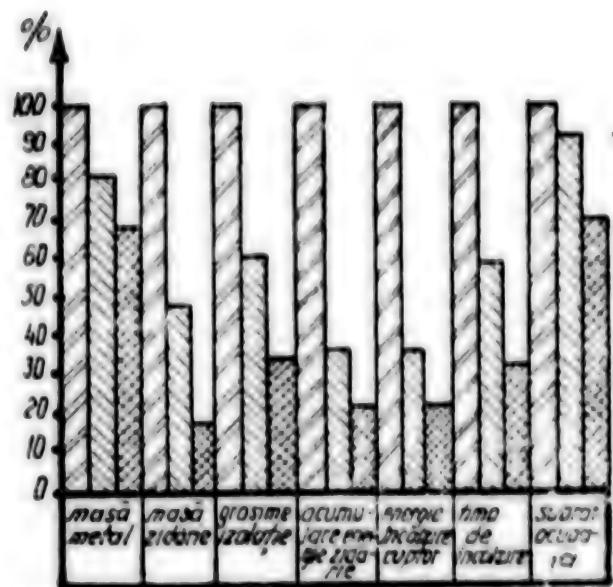


Fig. 2 GRAFICUL REDUCERII UNOR COSTURI PRIN TIPIZAREA CUPTDARELOR INDUSTRIALE

- proiectare după metode clasice 8
- tipizare dimensională (etapa I) 9
- unificare constructivă (etapa II) 10

Figure 2. Graph of Reduction of Costs by Typifying Industrial Furnaces

1. Volume of metal	6. Heating time
2. Volume of brickwork	7. Space occupied
3. Thickness of insulation	8. Design by traditional methods
4. Energy accumulated in brickwork	9. Dimensional typification (stage 1)
5. Energy to heat furnace	10. Structural unification (stage 2)

Combination, also known as modular design, is based on use of modules (blocks) that are functionally and geometrically interchangeable, have the properties of repeated convertibility and reversibility, and can be assembled in various combinations to form products of various shapes and sizes. We obtain many variants of equipment by keeping the basic structure of the machine and mounting various interchangeable subassemblies. And so in the present application of the methods of structural unification, combination and prefabrication, the typification processes are comparable to those in nature where, out of a limited number of 106 chemical elements, nature forms an infinity of original (individual) creations that are perfected and repeated many times in the following generations in higher forms.

We now have the objective conditions for transition to this new quality of typification and standardization because enough basic elements have been

recommended in the preceding five-year plans to permit their entry into a new and better stage. Besides a strong industrial potential and a clear idea from the party and state of the purpose and aims of typification and standardization in the present stage of Romania's economic development, we have a big contingent of specialists in various fields and a network of industrial engineering and research institutes that have been creating and developing unified series and typified families of all-purpose appliances and machine parts for nearly 30 years, as well as equipment for hydraulic and pneumatic drives, component elements and installations for cold processing of metal, motor vehicles, tractors, lifting machines, agricultural machines, machine tools, automation, measurement and control systems, typified assortments of components for chemical, metallurgical and construction-material manufacturing installations, other multipurpose production lines etc. On the basis of incipient forms of typification comprising assembly parts, simple tools and disparate elements of machines, the typification process has been extended to some assortments and families of complex manufacturing equipment needed to outfit the most diverse economic sectors.

The practical experience previously acquired in this field as well as the data acquired from other countries' technical literature enable us to draw some more general conclusions for raising the qualitative standard and effectiveness of typification and standardization in our economy:

- To feel typification activity must be made more systematic and regular, since periodic interruption of the promoted programs and their resumption in the form of stages of maximum concentration of the planning forces may lead not only to hasty adoption of technically and economically unsubstantiated decisions but also to nonfulfillment of very useful ideas that come up in the planning process. Planned checking of the typification tasks and formation of permanent collectives for typifying products and product groups, which have been recently founded or reactivated in enterprises and institutes, could be effective ways of accomplishing this purpose.
- Inasmuch as typification is based on the principle of adopting and reusing previous solutions tested by experience and the present standards for rating industrial engineering and design projects do not encourage promotion of these methods, we suggest revision of the conception basic to the documents for standardizing designing so as to encourage the researchers and designers to apply typification and structural unification methods in this way too. It must be realized that in the present stage of development and diversification of equipment, the new and rationally designed products are not original creations because of construction of the parts, subassemblies and other structural elements, since 80 percent of them are already assimilated in manufacture and incorporation in the structures of other products, but because of the new method of synthesizing, combining and providing them with power packs *[capete de forta]* and equipment enhancing their efficiency in operation and adapting them to the working conditions as accurately as possible.
- The attention now given to typification of equipment, installations and structures should also be extended equally to typification of manufacturing

processes, which are still approached quite hesitantly in our economy. For this reason different enterprises are using different processes for the same products, even large-series ones (assembly parts, axles in steps /axe in trepte/, rings, all-purpose structures etc.), resulting in heavy inputs of materials, energy and manpower.

- In view of the nature of typification and standardization activity, wherein conflicting interests often must be reconciled (those of the supplier of materials, rolled products and semifinished products with those of the equipment manufacturers and those of the latter with those of the beneficiaries of machines and installations), objectifying and rationalizing the adopted solutions by their mathematical simulation will be an integral part of any future operation of this nature. This calls for development of the appropriate computing equipment and mathematical system, as well as use of electronic computers to determine the best alternative. Of course it is rational for such problems, which entail heavy outlays, to be solved not individually by every separate economic unit or institute, but in centralized fashion for the economy and specifically for operations, the results of some becoming the property of all through a centralized bank of data and computing methods.
- Closer correlation of standardization and typification projects, more precise definition of the tasks of the organs in this field, centralization of the many internal and departmental norms for various products and subassemblies (the existence of which the designers sometimes learn of quite accidentally), and centralized manufacture of all-purpose subassemblies and parts will eliminate the present duplication in design and manufacture and will help to improve product quality and to lower production costs.
- We think all the recommended measures call for founding a specialized typification department under the Romanian Standardization Institute to direct this activity scientifically and methodologically, centralizing and exploiting the intellectual efforts made in this field on the scale of the whole national economy.
- For the same purpose, we think it very suitable and urgent to pass a law on standardization and typification in Romania to regulate, in close correlation with the law on product quality, the objectives of this activity, the categories of technical-regulatory documents with which they are to be pursued, the criteria determining the products for which state standards are prepared, sectorial technical norms and enterprise norms, the obligation to observe typification and the functions of the organs responsible for furthering this activity, organization of standardization-typification sections within the socialist units, etc.
- And finally, we think the measures to perfect and further expand typification and standardization in our economy should also include acquainting the future specialists in production (engineers and technicians) who are still in colleges and high schools (especially the technical ones) with knowledge of the theory and practice of typification and standardization. This is vital because the future specialists will be induced in a beginning stage of their education to consider all problems connected with physical production in the light of the technical and economic rationale. This trend is now emerging in all the industrially advanced countries, where there are special handbooks on standardization and courses and lectures on such subjects have been introduced.

ROMANIA

BRIEFS

JOINT COMPANY WITH MEXICO--Council of State Decree No 11 of 21 January 1980 approved the participation of the Industrial Central for Drugs, Cosmetics, Dyes and Lacquers, with headquarters in Bucharest, subordinate to the Ministry of Chemical Industry, in the establishment, together with Nacional Financiera, the National Bank of Mexico, the National Bank of Commerce, the Polibasicos S.A. company and the Pennwalt Del Pacifico S.A. company of the anonymous joint company with variable capital "PRODUCTORA MEXICANA DE FARMACOS S.A. de C/V.," with headquarters in the city of El Salto, in the state of Jalisco--United States of Mexico, having as the purpose of its activity the production and marketing of Vitamin C. The share of the participation of the Industrial Central for Drugs, Cosmetics, Dyes and Lacquers is 16 percent of the social capital of the company. [Text] [Bucharest BULENTINUL OFICIAL in Romanian Part 1 No 12, 9 Feb 80 p 1]

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